
THE GENUS *GLANDULARIA* (VERBENACEAE) IN BRAZIL¹

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ABSTRACT

Glandularia J. F. Gmel. (Verbenaceae) is the largest genus in the tribe Verbenae, with ca. 84 species distributed mainly in temperate North and South America. A complete taxonomic revision of *Glandularia* in Brazil is provided. Thirty-one species and one variety are present in Brazil, 11 of these being endemic, principally in the southern area of the country. A detailed morphological description is given for each taxon as well as a key for their identification, illustrations, synonymy, distribution, lists of selected specimens, and discussions about the relationships among closely related taxa. A new combination, *G. tomophylla* (Briq.) N. O'Leary & V. Thode, is here proposed, six new synonyms are suggested, and two lectotypes are designated for *Verbena chamaedryfolia* Juss. f. *strigosa* Chodat and *V. humifusa* Cham.

Key words: Brazil, flora, *Glandularia*, taxonomy, *Verbena*, Verbenaceae.

Glandularia J. F. Gmel. (Verbenaceae) is an exclusively American genus with approximately 84 species (Peralta, 2009; Múlgura et al., 2012). In South America, the greatest species diversity is found in the temperate areas of southern Brazil and northern Argentina. It belongs to tribe Verbenae Schauer along with the related genera *Verbena* L., *Junellia* Moldenke, and *Mulguraea* N. O'Leary & P. Peralta (Marx et al., 2010; O'Leary et al., 2012). *Glandularia* species are herbs or suffruticose plants, erect, prostrate or decumbent, mostly with ascending floral branches. *Glandularia* is distinguished from *Verbena*, its sister genus, by the presence of a long style and glandular appendages in the upper pair of stamens, hence the name “*Glandularia*.” However, some species may not contain all of these characters. In addition, the basic chromosome number in *Glandularia* is $x = 5$ and in *Verbena* is $x = 7$ (O'Leary & Peralta, 2007).

In South America *Glandularia* has been recently treated regionally for Argentina (Peralta & Múlgura, 2011) and Chile (O'Leary et al., 2013b). At the moment, apart from the Brazilian flora checklist (Thode & O'Leary, 2014) no complete treatment for *Glandularia* in Brazil exists. The only known floristic study for the genus in the country is for the state of Rio Grande do Sul where the authors mentioned 27 species (Thode & Mentz, 2010). Therefore, the present contribution represents the first complete taxonomic revision of genus *Glandularia* for Brazil.

MATERIALS AND METHODS

This taxonomic revision is based on collections from the following herbaria: CESJ, CTES, ESA, HBR, HPL, ICN, LIL, LP, MBM, NY, PACA, SI, and UFPR (Thiers, 2013). Following the herbaria initials is the herbarium sheet number or the barcode number (bc). When the specimen was seen, it is indicated by an exclamation mark. When the digital photo of the specimen was seen in JSTOR (<http://plants.jstor.org/>) or in virtual herbaria, it is indicated by “image!”

Flower measurements were taken from dried material that had been rehydrated by boiling. Fruit measurements were taken from dried specimens. The descriptive terminology of the inflorescences used here is in accordance with Múlgura et al. (2002), the morphological terms follow Hickey (1974), and the descriptions of pubescence follow Lawrence (1951). The taxa distribution and habitat data were taken from the herbarium specimen labels.

Only Brazilian specimens are cited in the examined material, and only one specimen per state is cited. The accepted names are listed in Appendix 1, and a list of the taxa synonymized in the present work, with indication of their actual taxonomic position, is presented in Appendix 2.

TAXONOMIC TREATMENT

Glandularia J. F. Gmel., Syst. Nat., ed. 13 [bis] 2(2): 886, 920. 1791 [1972]. *Verbena* L. subg. *Glandularia* (J. F. Gmel.) Nutt., J. Acad. Nat.

¹ We thank the curators of the herbaria cited in the text for the loan of specimens and assistance in the search of type material and bibliography. Special thanks to Francisco Rojas, from Darwinion, for the beautiful illustrations. Financial support came from Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) PIP 11220080100177/09 and PIP 00537/13. The authors are indebted to Paola Peralta whose manuscript served as a base for this work.

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Sci. Philadelphia 2(1): 123. 1821. *Verbena* sect. *Glandularia* (J. F. Gmel.) Schauer, Prodr. [DC.] 11: 550. 1847. *Verbena* subg. *Glandularia* (J. F. Gmel.) W. H. Lewis & R. L. Oliv., Amer. J. Bot. 48: 638–642. 1961, nom. illeg. hom. TYPE: *Glandularia carolinensis* J. F. Gmel. [= *Glandularia canadensis* (L.) Nutt., nom. illeg.].

Shuttleworthia Meisn., Pl. Vasc. Gen. 1: 290. 1840.

Uwarowia Bunge, Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 7: 278. 1840.

Verbena ser. *Nobilis* Schauer, Prodr. [DC.] 11: 537. 1847.

Herbs or suffruticose plants, prostrate or erect, stems erect or decumbent with ascending floral branches. Stems cylindrical to 4-angled. Leaves simple, opposite, blade entire, linear, elliptic, oblong, obovate or ovate, or divided, 3- to 5-lobed, 3- to 5-parted, 3- to 5-dissected, 2-pinnatipartite or 2- to 3-pinnatisect; sessile, subsessile or petiolate; apex acute or round, base attenuate, acute or truncate; margins entire, crenate, serrate, dentate or lobed; pubescence glabrous to variously strigose, hispid, hirsute, with or without glandular hairs. Inflorescences globose or spicate in anthesis, elongated or not in fructification, sessile or peduncled, grouped (pleiobotrya) in terminal (heterothetic) position or solitaire (monobotrya). Flowers sessile to subpedicellate, subtended by elliptic or ovate floral bracts. Calyx with 5 unequal teeth, aristate, acute, triangular, or almost mucronate, variable in length, external surface glabrous to variously pubescent: strigose, hirsute or hispid, sometimes retrorse hairs, with glandular hairs present or not, sometimes with patelliform glands, internal surface glabrous; fully accrescent in fruit and persistently enclosing mature schizocarp. Corolla hippocrateriform, white, violet, blue, pink, lilac, pale

blue, or red; tube cylindrical, externally glabrous to variously pubescent, internally villous along distal half; limb 5-lobed, lobes emarginate. Androecia composed of 4 didynamous stamens, thecae longitudinally dehiscent, superior pair with or without glandular anther connective appendages, sometimes surpassing the thecae, and weakly exerted from the corolla mouth. Gynoecia composed of a bicarpellate ovary 2-locular, with 2 ovules per carpel, style filiform, generally more than 3 times the length of the ovary, rarely shorter, stigma bilobed. Dry schizocarpic fruit, composed of 4 cylindrical cluses, apex round or rostrate, dorsal surface reticulate to plane, ventral surface papillose to verrucose. Base chromosome number $x = 5$.

Distribution and ecology. *Glandularia* is an American genus comprising ca. 84 species (Peralta, 2009) with a disjunct distribution, growing in North America, from the southern United States and Mexico to Guatemala, and in South America, in Brazil, Peru, Bolivia, Paraguay, Chile, Argentina, and Uruguay. It is found from sea level up to 4600 m elevation, in the Andean region.

Brazil has great species diversity with 32 taxa distributed from sea level up to 2000 m in the southern and southeastern Brazilian mountain ranges. The *Glandularia* species are found in southern Brazilian states, with records from Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Minas Gerais, and Mato Grosso do Sul. Rio Grande do Sul exhibits the greatest specific diversity, with 26 species and one variety. They occur in grasslands, rocky fields, sand, flooded areas, roadsides, hillsides, forests, and forest margins.

KEY TO SPECIES OF *GLANDULARIA* FROM BRAZIL

- 1. Leaf blades entire, margin lobed, serrate, dentate, or entire 2
- 1'. Leaf blades not entire, lobate, parted, dissected, margin entire or dentate 21
- 2(1). Inflorescences arranged in pleiobotrya with bracteose paracladia 3
- 2'. Inflorescences arranged in monobotrya or in frondose pleiobotrya 4
- 3(2). Trimerous or tetrameous disposition of paracladia, calyx less than 5 mm, corolla less than 7 mm 14. *G. lobata* (Vell.) P. Peralta & V. Thode
- 3'. Distal paracladia agglutinated in a corymbiform aspect, calyx longer than 5 mm, corolla longer than 9 mm.... 5. *G. corymbosa* (Ruíz & Pav.) N. O'Leary & P. Peralta
- 4(2'). Leaf blades linear to narrowly elliptic, margin entire or slightly serrate 5
- 4'. Leaf blades elliptic, triangular, ovate, obovate, never narrow, margin never entire, always dentate, serrate, or lobate, if narrowly ovate then with serrate, crenate, or lobate margin 6
- 5(4). Leaf base decurrent, floral bracts 10–14 mm long 26. *G. stellarioides* (Cham.) Schnack & Covas
- 5'. Leaf base cuneate, floral bracts 5–7 mm long 25. *G. sessilis* (Cham.) Tronc.
- 6(4'). Corollas white at anthesis; plants with densely hirsute-glandular pubescence on the stems, leaves, floral bracts, calyx, and corollas 21. *G. platensis* (Spreng.) Schnack & Covas
- 6'. Corollas never white at anthesis; plants never densely hirsute-glandular 7
- 7(6'). Inflorescences paucifloral, corollas up to 6 mm long ... 13. *G. jordanensis* (Moldenke) N. O'Leary & P. Peralta
- 7'. Inflorescences multifloral, corollas more than 10 mm long 8
- 8(7'). Inflorescences not enlarged in fructification 9
- 8'. Inflorescences enlarged in fructification 11
- 9(8). Plants with strigose pubescence on stems and calyx; the calyx with patelliform glands 16. *G. megapotamica* (Spreng.) Cabrera & G. Dawson

9’.	Plants with hirsute-glandular or hispid, sometimes glandular, pubescence on stems and calyx	10
10(9’).	Plants glandular-hirsute, floral bracts narrowly ovate, 5–6 mm long, calyx teeth acute, 1–2 mm long.....	
	 20. <i>G. phlogiflora</i> (Cham.) Schnack & Covas	
10’.	Plants hirsute, sometimes glandular; floral bracts ovate, 1.5–3 mm long, calyx teeth brief triangular, 1–1.2 mm long.....	8. <i>G. guaranitica</i> Tronc.
11(8’).	Leaves glabrous on both surfaces; stamens with glandular appendages, surpassing the thecae, slightly surpassing the corolla mouth	11. <i>G. herteri</i> (Moldenke) Tronc.
11’.	Leaves never glabrous, variously pubescent; stamens with or without glandular appendages	12
12(11’).	Leaf blades 3-lobed; corollas externally glabrous	12. <i>G. humifusa</i> (Cham.) Botta
12’.	Leaf blades entire; corollas externally villous, never completely glabrous	13
13(12’).	Leaf blades obovate; obtuse apex	15. <i>G. marrubioides</i> (Cham.) Tronc.
13’.	Leaf blades ovate, elliptic, triangular, never obovate; acute or subobtuse apex	14
14(13’).	Non-glandular pubescence on floral bract and calyx	15
14’.	Glandular pubescence on floral bract and calyx	17
15(14).	Cluses with rostrate apex, calyx teeth 2–4 mm long	9. <i>G. hasslerana</i> (Briq.) Tronc.
15’.	Cluses with round apex, calyx teeth shorter than 2 mm long	16
16(15’).	Superior pair of stamens unappendaged	18. <i>G. paulensis</i> (Moldenke) A. L. R. Oliveira & Salimena
16’.	Superior pair of stamens with glandular appendages, surpassing thecae, not surpassing corolla mouth	19
17(14’).	Leaf blades ovate triangular, petiole 8–25 mm long	18
17’.	Leaf blades elliptic to ovate, if triangular then briefly petiolated, petiole shorter than 8 mm	20
18(17).	Cluses rostrate, 4–6 mm long	17. <i>G. nana</i> (Moldenke) Tronc.
18’.	Cluses rounded, 2.8–3 mm long	23. <i>G. scrobiculata</i> (Griseb.) Tronc.
19(16’).	Calyx teeth acute, 1.8 mm long	30. <i>G. tomophylla</i> (Briq.) N. O’Leary & V. Thode
19’.	Calyx teeth brief, triangular, 0.5 mm long	7. <i>G. guaibensis</i> P. Peralta & V. Thode
20(17’).	Corollas bright red	19. <i>G. peruviana</i> (L.) Small
20’.	Corollas lilac or pink, exceptionally white	31. <i>G. tweedieana</i> (Niven ex Hook.) P. Peralta
21(1’).	Inflorescences not showy, corollas brief, less than 7.5 mm	22
21’.	Inflorescences showy, corollas long, more than 10 mm	24
22(21).	Leaves 3-parted, segments lobed to parted	10. <i>G. hatschbachii</i> (Moldenke) N. O’Leary & P. Peralta
22’.	Leaves 3-dissected, segments linear or narrowly elliptic	23
23(22’).	Leaves 5–10 mm long; floral bracts 1.8–3 mm; calyx 3–4 mm long; corolla tube 4–5.5 mm long.....	
	 29. <i>G. thymoides</i> (Cham.) N. O’Leary	
23’.	Leaves 10–20 mm long; floral bracts 3–6.5 mm; calyx 4.5–7.5 mm long; corolla tube 5.5–8 mm long....	
	 3. <i>G. balansae</i> (Briq.) N. O’Leary	
24(21’).	Superior pair of stamens with glandular appendages, surpassing corolla mouth	25
24’.	Superior pair of stamens unappendaged or with glandular appendages but not surpassing corolla mouth	27
25(24).	Cluses rostrate	31
25’.	Cluses round	26
26(25’).	Corollas externally villous	24. <i>G. selloi</i> (Spreng.) Tronc.
26’.	Corollas externally glabrous	27. <i>G. subincana</i> Tronc.
27(24’).	Corollas externally glabrous, leaves 3-dissected to bi- to tri-pinnatisect	28
27’.	Corolla externally villous, leaves lobate, pinnatilobate, 3-parted to 3-dissected, sometimes pinnatisect at apical nodes	29
28(27).	Calyx 9–10 mm long; superior pair of stamens with glandular appendages, not surpassing corolla mouth; cluses 3 mm long	2. <i>G. aristigera</i> (S. Moore) Tronc.
28’.	Calyx 15–20 mm long; superior pair of stamens unappendaged; cluses 4.5–5 mm long.....	
	 1. <i>G. angustilobata</i> (Moldenke) P. Peralta & V. Thode	
29(27’).	Abaxial foliar surface, floral bract, and calyx with glandular hairs, calyx teeth triangular, less than 1 mm long	4. <i>G. catharinae</i> (Moldenke) N. O’Leary & P. Peralta
29’.	Abaxial foliar surface, floral bract, and calyx with no glandular hairs; calyx teeth acute or aristate, more than 1.5 mm long	30
30(29’).	Calyx surface evenly hispid, floral bracts 3–5 mm long, narrowly ovate, acute apex, strigose, cluse with round apex	30. <i>G. tomophylla</i> (Briq.) N. O’Leary & V. Thode
30’.	Calyx surface hispid only on nerves, floral bracts 4.5–8 mm long, widely ovate, acute apex, glabrous, cluse with rostrate apex	6. <i>G. dusenii</i> (Moldenke) N. O’Leary & P. Peralta
31(25).	Leaves 3-dissected, rarely bipinnatisect, 30–55 × 20–40 mm, petiole 11–15 mm, corolla 14–18 mm	
	 22. <i>G. rectiloba</i> (Moldenke) P. Peralta & V. Thode	
31’.	Leaves 3- to 5-dissected to bipinnatisect, 15–20 × 15 mm, petiole less than 10 mm, corolla 12–13 mm	28. <i>G. tenera</i> (Spreng.) Cabrera

1. *Glandularia angustilobata* (Moldenke) P. Peralta & V. Thode, *Rodriguésia* 61(suppl.): 30. 2010. Basionym: *Verbena cabreræ* Moldenke var. *angustilobata* Moldenke, *Phytologia* 28: 195. 1974. TYPE: Brazil. Mato Grosso do Sul: Mun.

Aquidauana, cerrado at Col. Paxixi, 20 Feb. 1973, *G. Hatschbach* 23852 (holotype, TEX [bc] TEX375217!; isotype, MBM!, SI!). Figure 1.

Erect to prostrate herb, stems erect or decumbent with ascending floral branches, pubescence strigose.

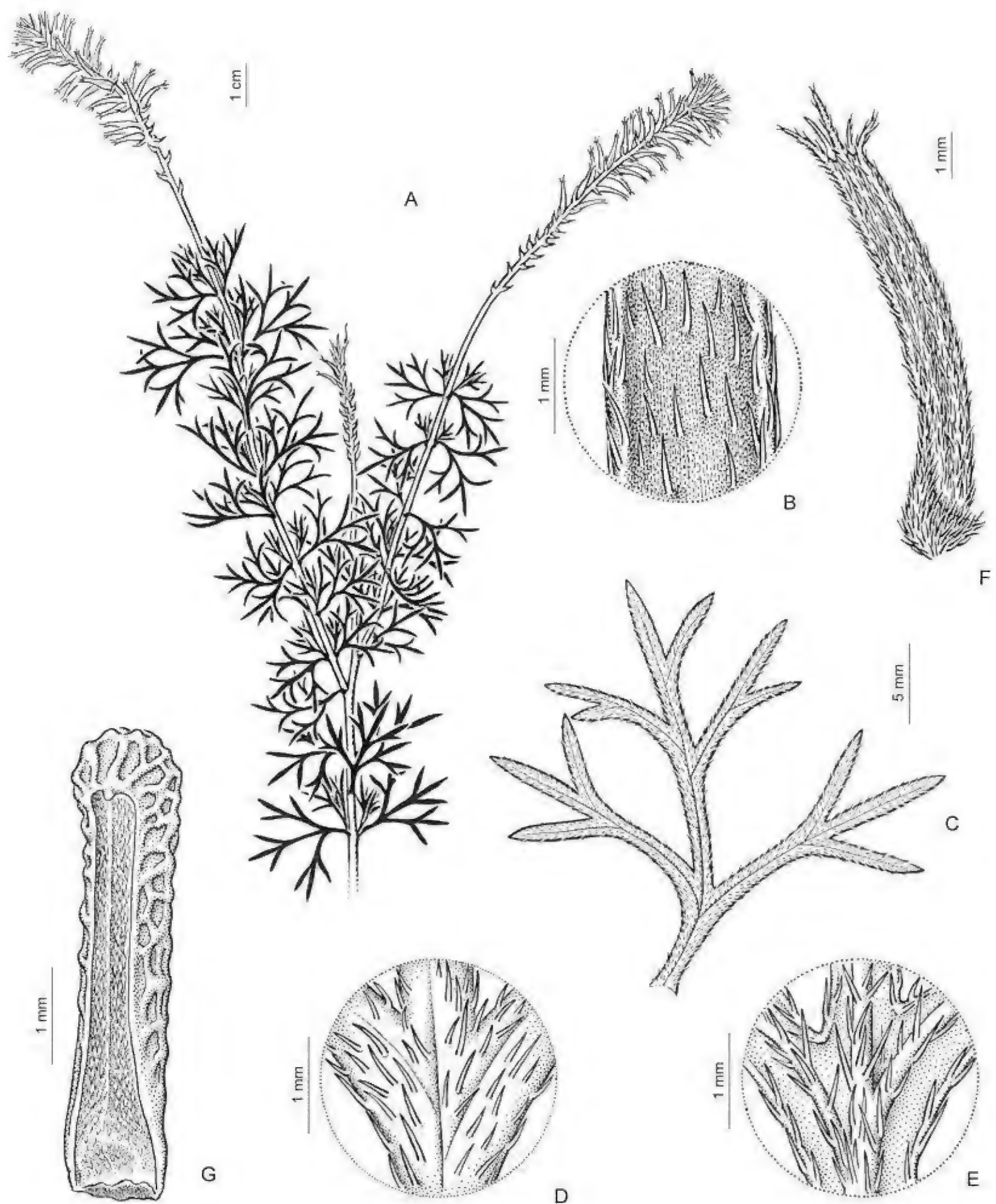


Figure 1. *Glandularia angustilobata* (Moldenke) P. Peralta & V. Thode. —A. Floriferous branch, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, adaxial surface. —E. Detail of leaf pubescence, abaxial surface. —F. Calyx and floral bract. —G. Cluse, ventral face. A–G from *Krapovichas* 32877 (Sl).

Leaves briefly petiolate, petiole less than 10 mm, blade $25\text{--}30 \times 20\text{--}25$ mm, 3-sected to bipinnatisect, both surfaces strigose, margin revolute. Inflorescences arranged in frondose pleiobotrya, lateral paracladia surpassing terminal florescence, florescences represented by dense multifloral spikes, enlarged in fruit, peduncles 25–50 mm.

Floral bracts 2.5–4 mm, ovate, apex aristate, pubescence strigose, sometimes with patelliform glands. Calyx 15–20 mm, the surface strigose with some patelliform glands, teeth acute, 1.8 mm. Corolla 12–13 mm, externally glabrous, violet. Superior pair of stamens unappendaged, style 9–10 mm. Cluses 4.5–5 mm, apex round.

Distribution. *Glandularia angustilobata* is endemic to the Brazilian state of Mato Grosso do Sul.

Notes. *Glandularia angustilobata* is similar to *G. aristigera*. They differ by the calyx size, which is 15–20 mm long in *G. angustilobata* and less than 10 mm long in *G. aristigera*. In *G. angustilobata*, the stamens are unappendaged and the cluses are bigger (4.5–5 mm) than those in *G. aristigera* (3 mm).

Selected specimens examined. BRAZIL. **Mato Grosso do Sul:** 23 km de Aquidauana, Krapovickas 32877 (SI).

2. *Glandularia aristigera* (S. Moore) Tronc., Darwiniana, 14: 636. 1968. Basionym: *Verbena aristigera* S. Moore, Trans. Linn. Soc. London, Bot. ser. 2, 4: 439. 1895. TYPE: Brazil. Mato Grosso do Sul: “Prope montem Pão d’Assucar dictum, inter Coimbrá et fl. Apa,” 1891–1892, S. Moore 1083 (lectotype, designated by Peralta & Múlgura [2011: 368], BM [bc] BM0000070617!; isoelectotype, SI [bc] 00003677!). Figure 2.

Verbena tenuisecta Briq., Annuaire Conserv. Jard. Bot. Genève 7–8: 294. 1904. *Glandularia tenuisecta* (Briq.) Small, Man. Southeast. Fl.: 1139. 1933. TYPE: Paraguay. La Trinidad: 4-X-1875, B. Balansa 1025 (holotype, G [bc] G00077154!, isotypes, F [bc] F0074536!, G [bc] G000077155!, K [bc] K000470520!, NY [bc] KNY138336!, P [bc] P0000650869!, P [bc] P0000650868!, SI!).

Verbena cochabambensis Moldenke, Castanea 10: 45. 1945. TYPE: Bolivia. Cochabamba: Maica, 2500 m, Mar. 1941, M. Cárdenas 2212 (holotype, NY [bc] NY00138256!; isotypes, SI [bc] SI00003819!, US [bc] US0000118683!).

Prostrate herb, 15–60 cm tall, stems decumbent with ascending floral branches, pubescence glabrous to strigose. Leaves briefly petiolate, petiole less than 10 mm, blade 10–30 × 15–30 mm, 3-dissected to bi- to tri-pinnatisect, segments linear to ovate, both surfaces strigose, margin revolute. Inflorescences arranged in monobotrya or frondose pleiobotrya, lateral paracladia surpassing the terminal florescence, inflorescences represented by dense, multifloral spikes, enlarged in fruit, peduncle 10–70 mm. Floral bracts 3–4 mm, ovate, apex acute, pubescence strigose, sometimes with patelliform glands. Calyx 9–10 mm, the surface strigose with some patelliform glands, teeth aristate, 0.5–1 mm. Corolla 12 mm, externally glabrous, violet, lilac, or pink. Superior pair of stamens with glandular appendages, surpassing the thecae or not, not surpassing corolla mouth, style 8.5–9 mm. Cluses 3 mm, apex round.

Distribution and ecology. *Glandularia aristigera* is found in northern, northeastern, and central

Argentina, southwestern Bolivia, Paraguay, and southern Brazil. It is probably also present in Uruguay. It inhabits open areas, disturbed areas, roadsides, sand, wetlands, and rocky outcrops, up to 1250 m.

Notes. *Glandularia aristigera* is similar to *G. angustilobata*; see notes under that species. In *G. aristigera* the width of the foliar segments is variable, from linear, as in *G. tenera*, to ovate, as in *G. selloi*. *Glandularia tenera* is distinguished by its rostrate cluses and long stamens with glandular appendages surpassing the corolla mouth, while *G. aristigera* has cluses with a round apex and glandular appendages included. In *G. selloi* the corolla is externally villous, while in *G. aristigera*, *G. angustilobata*, and *G. tenera*, it is glabrous.

Selected specimens examined. BRAZIL. **Mato Grosso do Sul:** Bela Vista, Rio Apa, Hatschbach 58800 (CTES). **Paraná:** Guarapuava, Rio Iguaçu, Barra do Jordão, Hatschbach 9946 (SI). **Rio Grande do Sul:** Santo Angelo, Schulz 465 (SI). **Santa Catarina:** s. loc., Pomerode, H. Lorenzi 1213 (HPL 11325). **São Paulo:** Piracicaba, H. Lorenzi 1972 (HPL 8108).

3. *Glandularia balansae* (Briq.) N. O'Leary, Novon 17: 506. 2007. Basionym: *Verbena balansae* Briq., Annuaire Conserv. Jard. Bot. Genève 7–8: 293. 1904. TYPE: Paraguay. Campos Caaguazú, Mar. 1876, B. Balansa 1028 (lectotype, designated by O'Leary et al. [2007a: 506], G [bc] G00072170!; isotypes, F [bc] F0074499!, K [bc] K0000470519!, P [bc] P0000650819!, SI [bc] SI00003916!). Figure 3.

Plants suffruticose, up to 50 cm tall, stems and branches erect, sometimes decumbent at the base, strigose with scattered glandular hairs. Leaves sessile, blade (5–)10–20 × 0.2–1 mm, trisected, segments linear or narrowly elliptic, lateral segments usually bisected, apex acuminate, margins entire, usually revolute, with scattered short hairs and strigose pubescence on both surfaces and margins. Inflorescences arranged in monobotrya or frondose pleiobotrya, lateral paracladia surpassing the terminal florescence, inflorescences represented by dense multifloral or paucifloral spikes, enlarged in fruit, peduncle 10 mm. Floral bracts 3–6.5 mm, narrowly ovate, apex acute, sparsely strigose, glabrous margins. Calyx 4.5–7.5 mm, surface sparsely strigose, teeth acute, 1 mm. Corolla 5.5–8 mm, externally glabrous, pale blue or lilac turning white to violet. Superior pair of stamens with vestigial glandular appendages or none, not surpassing thecae, not surpassing corolla mouth; style 1.5–2 mm. Cluses 2–2.5 mm, apex round.

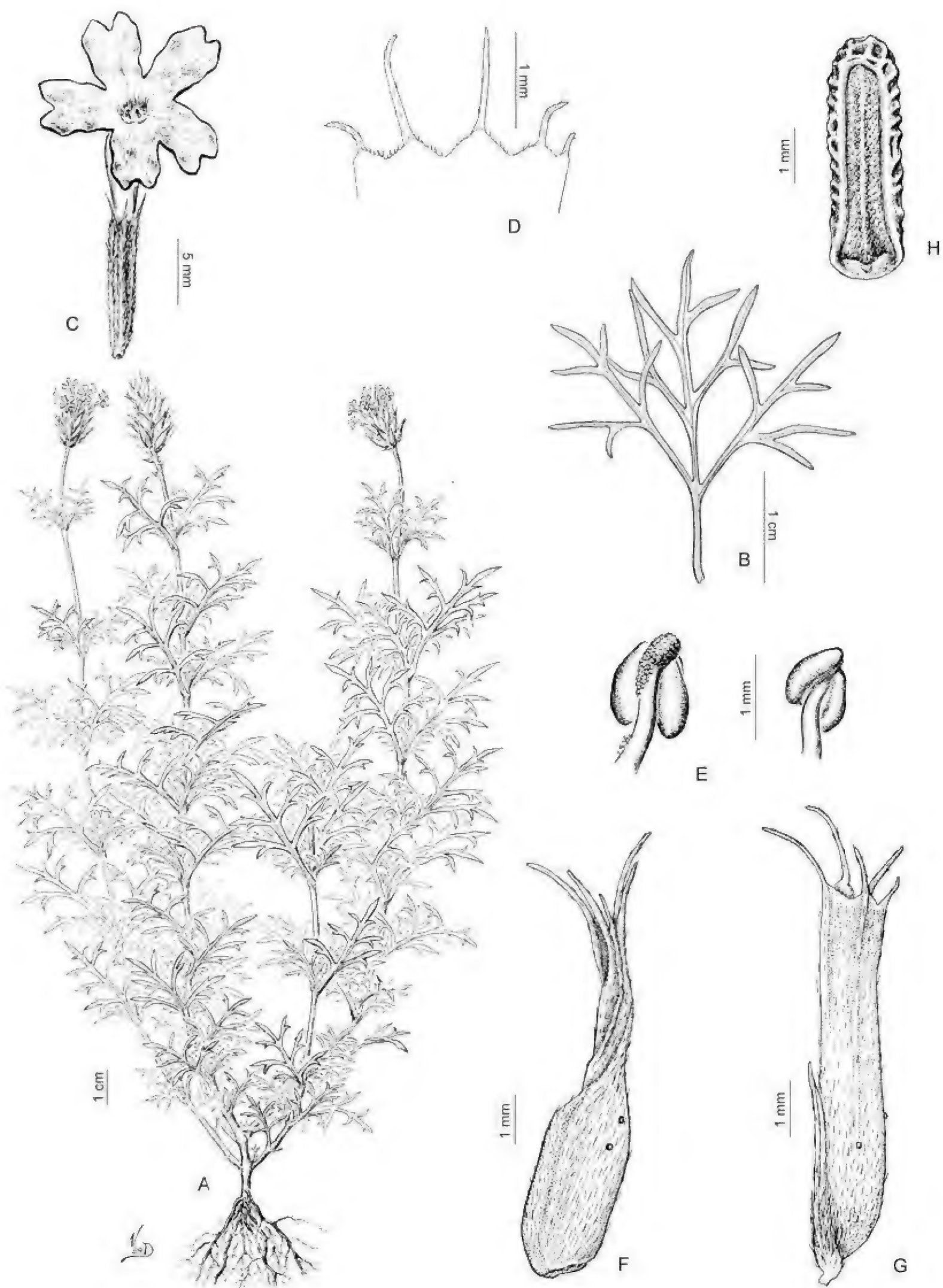


Figure 2. *Glandularia aristigera* (S. Moore) Tronc. —A. Plant, general aspect. —B. Leaf, adaxial surface. —C. Flower. —D. Detail of calyx teeth. —E. Superior pair of stamens. —F. Fructiferous calyx. —G. Calyx and floral bract. —H. Cluse, ventral face. A–H from *Spegazzini s.n.* (LP).

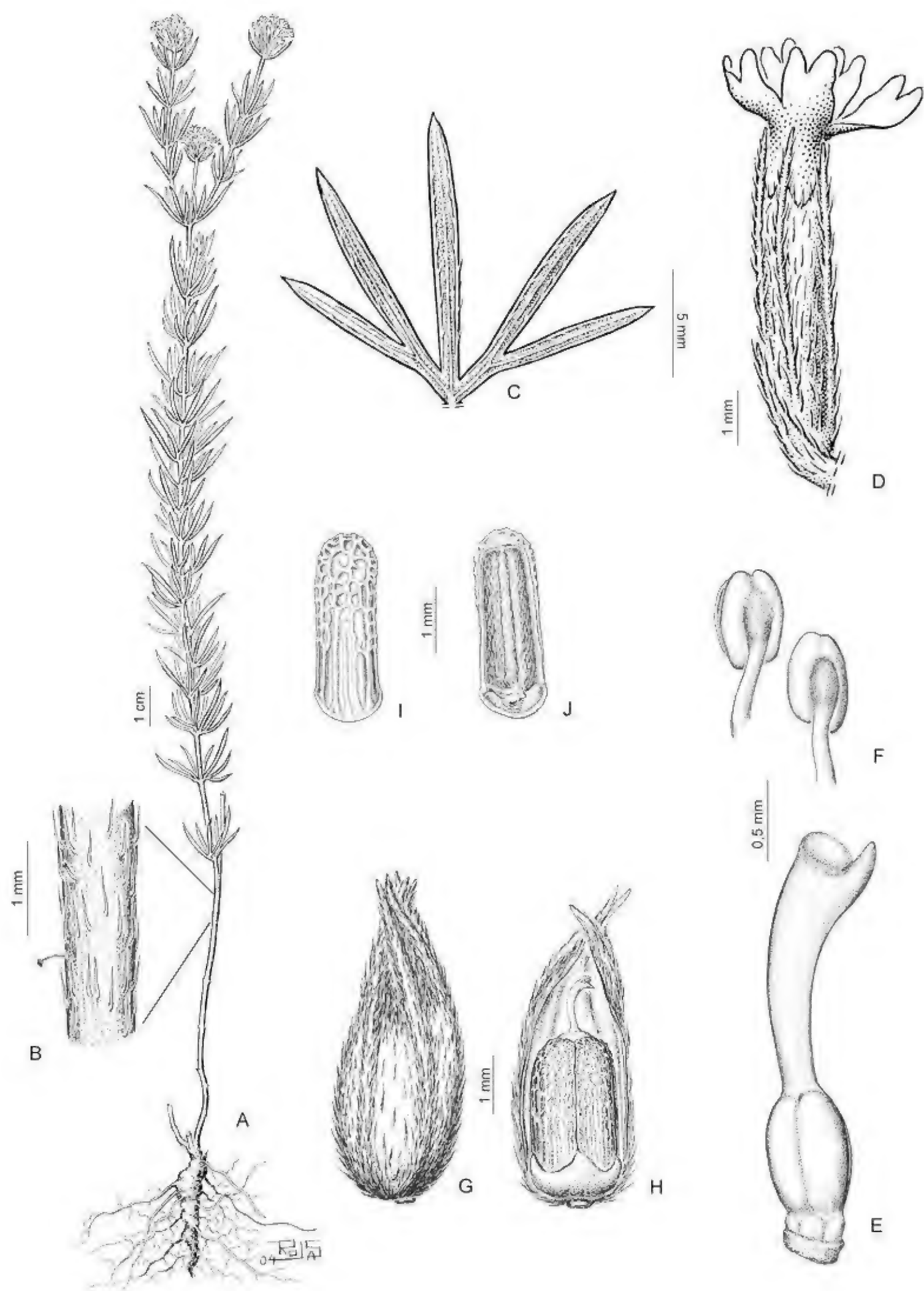


Figure 3. *Glandularia balansae* (Briq.) N. O’Leary. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, abaxial surface. —D. Flower with floral bract. —E. Gynoecia. —F. Superior pair of stamens. —G. Fructiferous calyx. —H. Fruit covered by fructiferous calyx. —I. Cluse, dorsal face. —J. Cluse, ventral face. A, C–F from *Rojas* 7537 (SI); B, G–J from *Schinini* 10474 (SI).

Distribution and ecology. *Glandularia balansae* occurs in northeastern Argentina, Brazil, and Paraguay. It inhabits dry fields and grasslands and has also been found in flooded areas.

Notes. *Glandularia balansae* is morphologically similar to *G. thymoides*; see notes under this species.

Selected specimens examined. BRAZIL. **Mato Grosso do Sul:** Ponta Porã, *Hatschbach* 58759 (CTES, SI). **Paraná:** Tibagi, Pilão de Pedra, *Hatschbach* 14658 (MBM, UFPR). **Rio Grande do Sul:** Porto Alegre, Campo da Granja Pinheirinho W de Carazinho, *Ribas* 1689 (MBM). **Santa Catarina:** Laguna, Lagoa Ibiquara, *Forero* 3741 (MBM).

4. *Glandularia catharinae* (Moldenke) N. O’Leary & P. Peralta, *Darwiniana* 45(2): 219. 2007. Basionym: *Verbena catharinae* Moldenke, *Phytologia* 5: 92. 1954. TYPE: Brazil. Santa Catarina: Araranguá, Taimbesinho, 900 m.s.m., 15 Feb. 1946, *P. R. Reitz* 1561 (holotype, HBR!; isotypes, NY [bc] NY000138252!, SI [bc] SI00003796!). Figure 4.

Prostrate herb, stems decumbent with ascending floral branches, pubescence hirsute. Leaves briefly petiolate, petiole 2–4 mm, blade 10–15 × 13–15 mm, 3-parted to 3-dissected, lobes bilobed, apex acute, base attenuate, margin entire and revolute, adaxial surface glabrous with few erect hairs, abaxial surface hirsute-glandular with long patent hairs principally over the nerves. Inflorescences arranged in monobotrya, less frequently in frondose pleiobotrya, lateral paracladia surpassing the terminal florescence, inflorescences represented by dense multifloral spikes, enlarged in fructification, peduncle 30 mm. Floral bracts 3–4 mm, ovate, apex acute, pubescence hirsute, with glandular hairs. Calyx 7–8 mm, the surface hispid with some glandular hairs, teeth triangular, 0.5–1 mm. Corolla 10–15 mm, externally villous, violet, lilac, or pink. Superior pair of stamens with brief glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 10 mm. Cluses 2.5–3 mm, apex round.

Common names. “Camaradinha,” “formosa sem dote,” and “jurupeba.”

Distribution and ecology. *Glandularia catharinae* is endemic to southern Brazil, found in the states of Santa Catarina, Paraná, and Rio Grande do Sul, growing between 500 and 1200 m elevation.

Notes. *Glandularia catharinae* is similar to *G. jordanensis* and *G. hatschbachii*. It is distinguished by its multifloral and showy inflorescences, being paucifloral in *G. jordanensis* and *G. hatschbachii*. In

G. catharinae the corolla is longer (10–15 mm) than in *G. jordanensis* and *G. hatschbachii* (5–6 mm). *Glandularia catharinae* is distinguished from *G. selloi* and from other species that have morphologically similar leaves by the abaxial surface of the leaves being glandular-hirsute with long patent hairs principally over the nerves.

Selected specimens examined. BRAZIL. **Paraná:** Bituruna, Rio Jangada, *Hatschbach* 14968 (MBM, SI, UFPR, UPCB). **Rio Grande do Sul:** Montenegro, Pinhal, *Sehnem* 5052 (PACA, SI). **Santa Catarina:** Água Doce, BR 153, Rio Roseira 18 km S de Horizonte, *Krapovickas* 33668 (CTES, SI).

5. *Glandularia corymbosa* (Ruíz & Pav.) N. O’Leary & P. Peralta, *Darwiniana* 45(2): 219. 2007. Basionym: *Verbena corymbosa* Ruíz & Pav., *Fl. Peruv.* 1, 22, t. 33. 1798, non *Verbena corymbosa* Cham., *Linnaea* 7: 255. 1832. TYPE: Chile. Concepción: s.d., *H. Ruíz & J. Pavon* s.n. (lectotype, designated by O’Leary et al. [2013b: 261], MA [bc] MA00814973!; isoelectotypes, BM [bc] 00544174!, MA [bc] MA00814971!). Figure 5.

Plants suffruticose, 60–100 cm tall, rhizomatous, stems erect, pubescence hispid with glandular hairs. Leaves sessile or briefly petiolate, petiole less than 2 mm, blade 30–60 × 15–30 mm, entire, oblong, apex acute, base truncate or cordate with 2 subamplexicaule lobes, margin serrate-dentate with acuminate irregular teeth, adaxial surface strigose, abaxial surface hispid with prominent nerves. Inflorescences arranged in pleiobotrya with bracteose paracladia, distal paracladia agglutinated in a corymbiform aspect, inflorescences dense multifloral spikes, enlarged in fructification, peduncles 60 mm. Floral bracts 4–7 mm, ovate to linear, apex acute, pubescence hispid, sometimes with some glandular hairs. Calyx 5–7 mm, surface hispid with some glandular hairs, teeth triangular, 1–1.5 mm. Corolla 9–15 mm, externally villous, violet or blue. Superior pair of stamens with vestigial glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 8 mm. Cluses 2.5 mm, apex round.

Common names. “Formosa sem dote.”

Distribution and ecology. *Glandularia corymbosa* has a wide area of distribution; however, it is apparently never frequent. It is found in Chile, Brazil, and Uruguay. It is probably present in Argentina but has never been collected there.

Notes. *Glandularia corymbosa* can be distinguished by its type of inflorescence, not frequent in *Glandularia* species, which is a pleiobotrya with

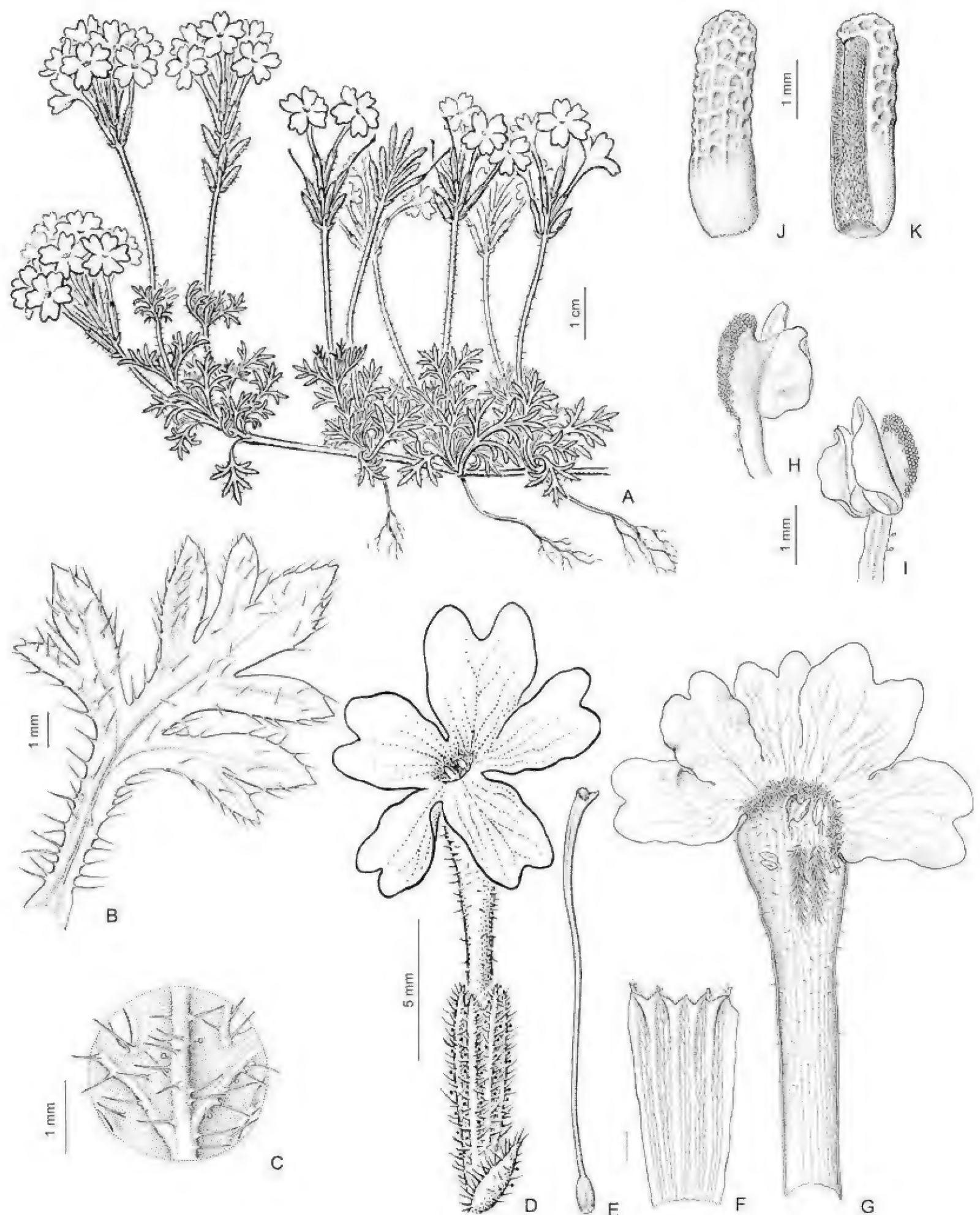


Figure 4. *Glandularia catharinae* (Moldenke) N. O'Leary & P. Peralta. —A. Plant, general aspect. —B. Leaf, adaxial surface. —C. Detail of leaf pubescence, abaxial surface. —D. Flower with floral bract. —E. Gynoecium. —F. Calyx extended, inner surface. —G. Corolla opened with androecium. —H, I. Superior pair of stamens. —J. Cluse, dorsal face. —K. Cluse, ventral face. A–K from *Sehnem* 5052 (SI).

bracteose paracladia, with distal paracladia agglutinated in a corymbiform aspect. It is also distinguished by its truncate or cordate leaf base with two subamplexicaul lobes.

Selected specimens examined. BRAZIL. **Paraná:** Gral. Carneiro, *Hatschbach* 28316 (MBM, SI). **Rio Grande do Sul:** Bom Jesus, faz. B. Velho, *Rambo* 34774 (SI). **Santa Catarina:** Caçador, *Smith & Reitz* 8977 (SI); Lages, Encruzilhada, *Klein* 3200 (SI).

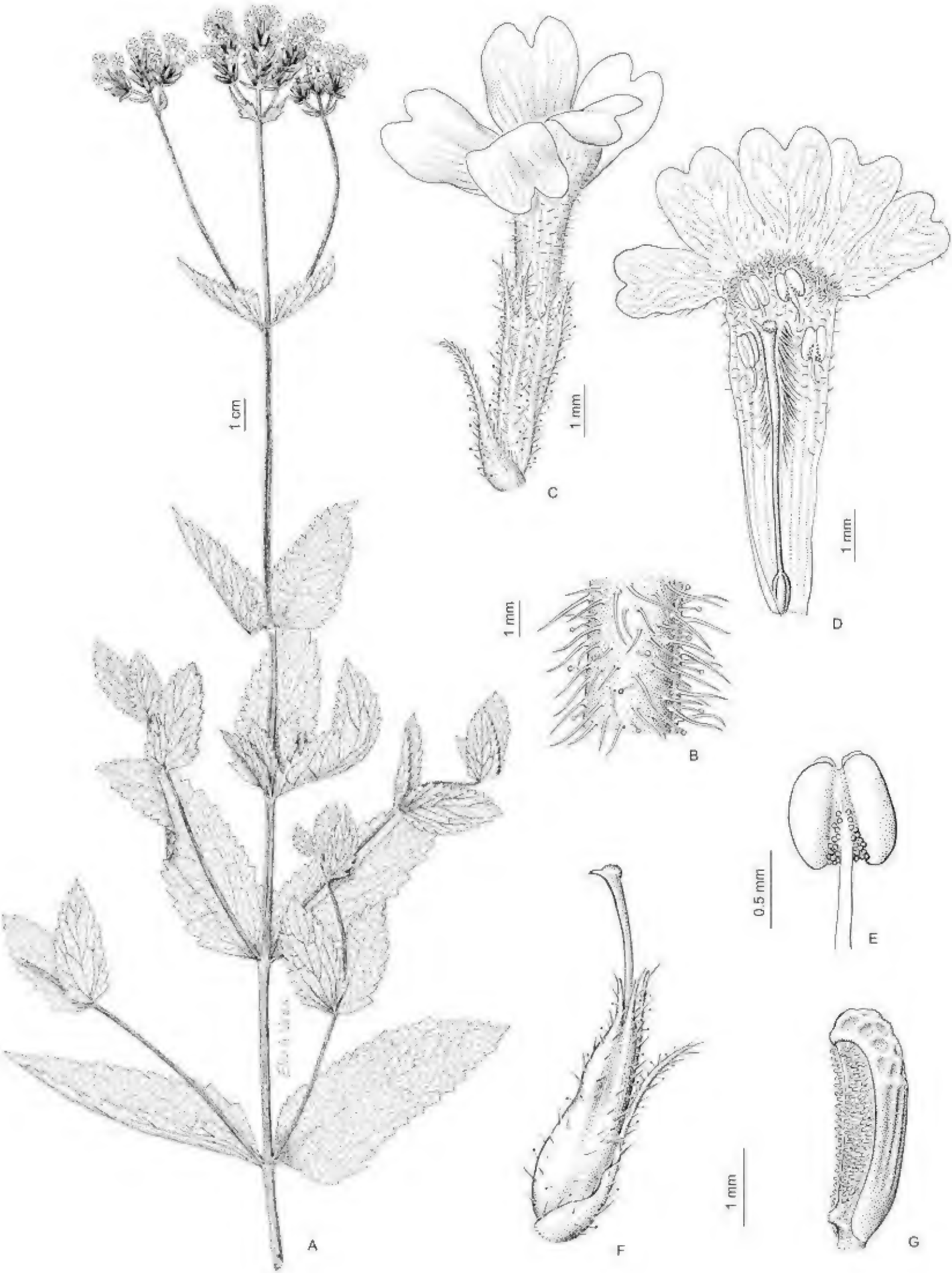


Figure 5. *Glandularia corymbosa* (Ruíz & Pav.) N. O'Leary & P. Peralta. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Flower with floral bract. —D. Corolla opened with androecia and gynoecia. —E. Superior stamen. —F. Fructiferous calyx. —G. Cluse, lateral face. A from *Smith & Reitz 8977* (SI); B–G from *Klein 3200* (SI).

6. ***Glandularia dusenii*** (Moldenke) N. O'Leary & P. Peralta, *Darwiniana* 45: 222. 2007. Basionym: *Verbena dusenii* Moldenke, *Phytologia* 2: 422. 1948. TYPE: Brazil. Paraná: Pinhães, 29 Oct. 1908, *P. K. H. Dusén 7108* (holotype, S; isotypes, LD [bc] LD001403038!, NY [bc] NY0138262!, PH [bc] PH00028756!, SI [bc] SI00003817!, US [bc] US000118690!). Figure 6.

Plants suffruticose, prostrate, stems decumbent with ascending floral branches, strigose to glabrous. Leaves briefly petiolate, petiole 3–7 mm, blade 10–35 × 10–35 mm, 3-parted, apex and base acute, margin serrate to biserrate, both surfaces subglabrous to strigose. Inflorescences arranged in pleiobotrya with frondose paracladia, surpassing the principal florescence or not, inflorescences dense multifloral spikes, enlarged in fructification, peduncle 40–60 mm. Floral bracts 4.5–8 mm, widely ovate, apex acute, glabrous with ciliate margin. Calyx 8–10 mm, hispid over the nerves, teeth aristate, 2 mm. Corolla 12–15 mm, externally villous, violet. Superior pair of stamens with sessile glandular appendages, surpassing thecae, not surpassing corolla mouth, style 8–9 mm. Cluses 4–5 mm, apex rostrate.

Distribution. *Glandularia dusenii* is endemic to the Brazilian state of Paraná.

Notes. *Glandularia dusenii* is distinguished by its widely ovate floral bracts, glabrous except at the margins.

Selected specimens examined. BRAZIL. **Paraná:** Guaraituba, Colombo, *Hatschbach 1519* (MBM, SI).

7. ***Glandularia guaibensis*** P. Peralta & V. Thode, *Rodriguésia* 61(suppl.): 30. 2010. TYPE: Brazil. Rio Grande do Sul: Guaíba, faz. São Maximiano, BR 116, Km. 308, 28 Sep. 2007, *V. Thode 31* (holotype, ICN!; isotype, SI!). Figure 7.

Prostrate to erect herb, stems decumbent or erect, pubescence hispid. Leaves briefly petiolate, petiole 2–3 mm, blade 25–70 × 6–18 mm, entire, elliptic or ovate, apex acute, base attenuate, margin serrate toward apex, entire toward base, adaxial surface strigose, abaxial surface hispid. Inflorescences arranged in monobotrya, less frequently in frondose pleiobotrya, lateral paracladia surpassing the terminal florescence, inflorescences represented by dense multifloral spikes, enlarged in fructification, peduncle 30 mm. Floral bracts 6–7 mm, ovate, apex acute, pubescence hispid. Calyx 8–9 mm, hispid principally on the nerves, the rest strigose, teeth brief, triangular, 0.5 mm. Corolla 13–14 mm, externally villous, lilac

or pink. Superior pair of stamens with glandular appendages, pedicellate and surpassing thecae, not surpassing corolla mouth, style 10 mm. Cluses 3–4 mm, apex round.

Distribution and ecology. *Glandularia guaibensis* is endemic to the Brazilian state of Rio Grande do Sul. Its distribution is restricted to the locality of Guaíba, where this species can be found in swamps. The six collections known are from the same locality; the first was collected in 1985.

Notes. *Glandularia guaibensis* is similar to *G. hasslerana* and *G. paulensis*; see notes under these taxa.

Selected specimen examined. BRAZIL: **Rio Grande do Sul:** Guaíba, BR 116, Km. 307, *Matzembacher s.n.* (ICN 63933).

8. ***Glandularia guaranitica*** Tronc., *Darwiniana* 16: 618–621, fig. 3. 1971. *Verbena guaranitica* (Tronc.) Moldenke, *Phytologia* 23: 211. 1972. TYPE: Argentina. Corrientes: Dpto. San Martín, Tres Cerros, 8 Nov. 1936, *A. Burkart 8028* (holotype, SI [bc] SI00003803!; isotype, SI [bc] SI00003804!). Figure 8.

Plants suffruticose, 50–120 cm tall, stems erect, sometimes decumbent, pubescence hispid, sometimes glandular, retrorse hairs. Leaves briefly petiolate, petiole 5–15 mm, blade 30–100 × 9–27 mm, entire, triangular or ovate, apex acute, base cuneate, margin serrate, adaxial surface strigose, abaxial surface hispid, principally over nerves. Inflorescences arranged in pleiobotrya, with 1 or 2 frondose lateral paracladia, surpassing or not terminal florescence, inflorescences represented by dense multifloral spikes, not enlarged in fructification, peduncle 7–25 mm. Floral bracts 1.5–3 mm, ovate, apex acute, pubescence hispid or strigose, margin ciliate. Calyx 8–9 mm, hispid, retrorse hairs, teeth briefly triangular, 1–1.2 mm. Corolla 19–25 mm, externally with glandular hairs at apical part, the rest glabrous, violet. Superior pair of stamens with subsessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 20 mm. Cluses 6 mm, apex rostrate.

Distribution and ecology. *Glandularia guaranitica* is found in northeastern Argentina, southern Brazil, and eastern Paraguay. It grows in high areas in forest margins, up to 300 m.

Notes. *Glandularia guaranitica* is similar to *G. phlogiflora* and *G. megapotamica*. The three species have a similar habit, with the stem pubescence

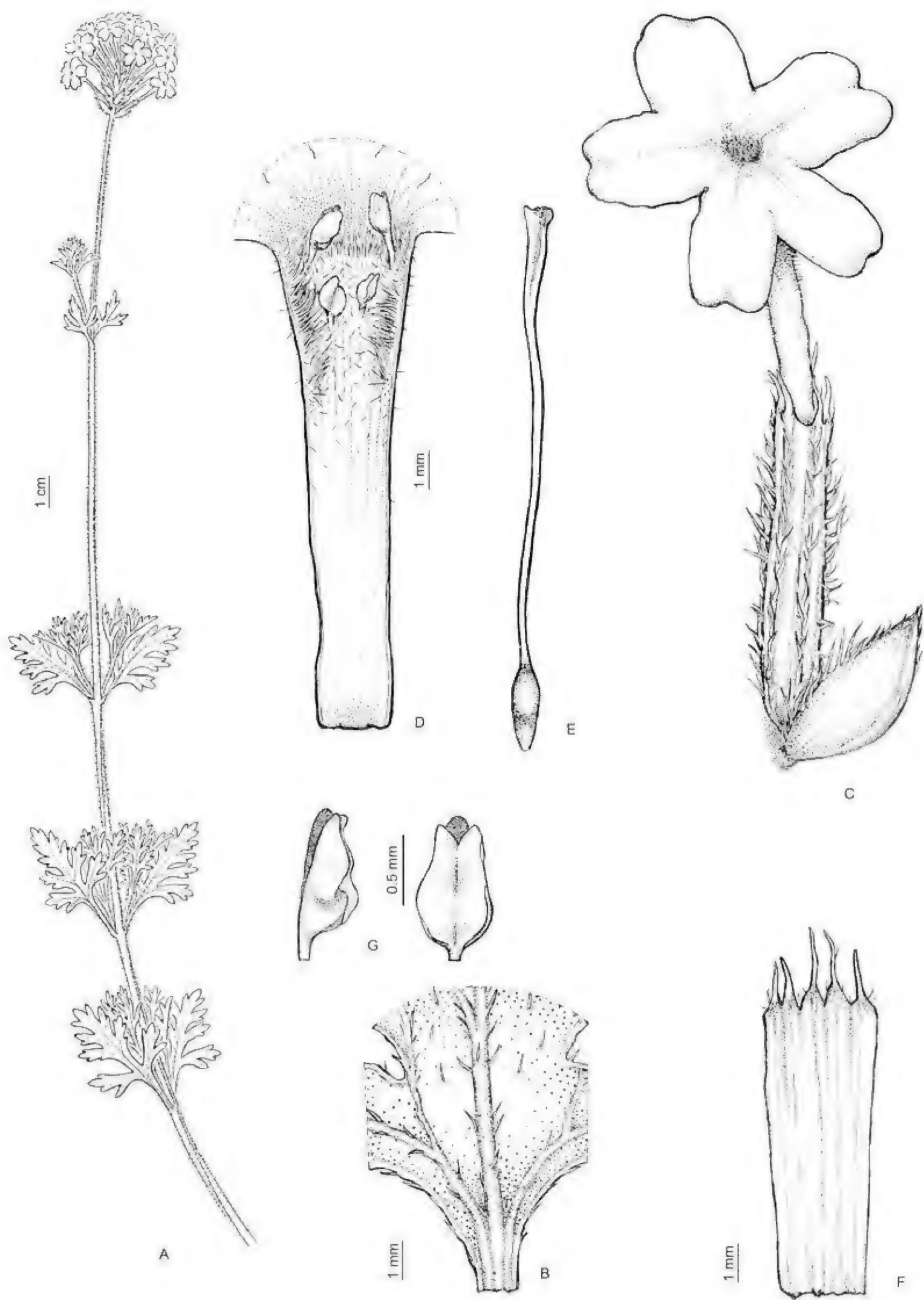


Figure 6. *Glandularia dusenii* (Moldenke) N. O'Leary & P. Peralta. —A. Branch, general aspect. —B. Detail of leaf pubescence, abaxial surface. —C. Flower with floral bract. —D. Corolla opened with androecia. —E. Gynoecia. —F. Calyx extended, inner surface. —G. Superior pair of stamens. A–G from *Hatschbach 1519* (SI).

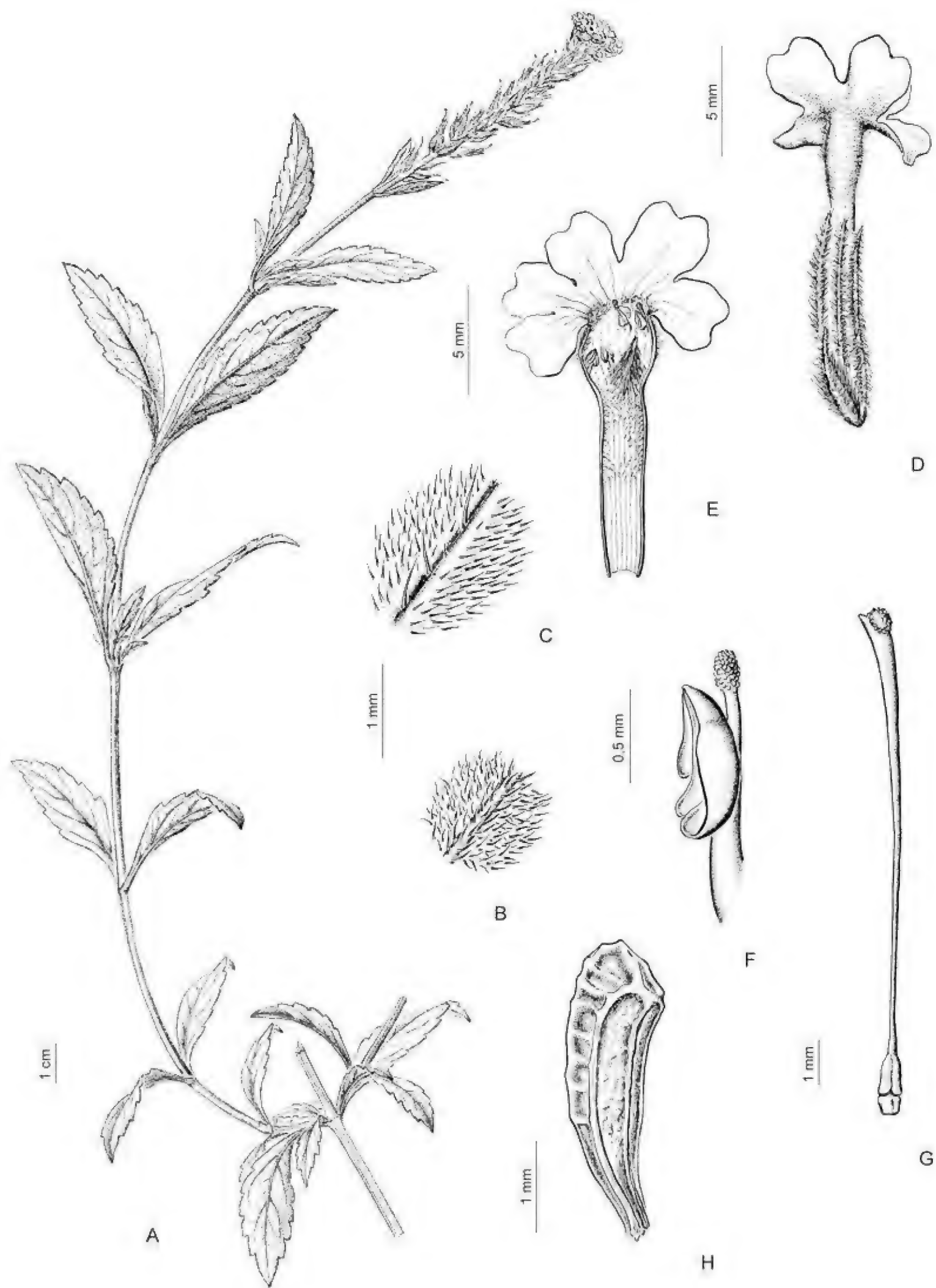


Figure 7. *Glandularia guaibensis* P. Peralta & V. Thode. —A. Branch, general aspect. —B. Detail of leaf pubescence, abaxial surface. —C. Detail of leaf pubescence, adaxial surface. —D. Flower with floral bract. —E. Corolla opened with androecia. —F. Superior stamen. —G. Gynoecia. —H. Cluse, lateral face. A–H from Matzembacher s.n. (ICN).

retorse (especially below the inflorescences), inflorescences not enlarged in fruit, corollas with glandular hairs externally, and the superior pair of stamens with subsessile glandular appendages.

They can be distinguished by the calyx pubescence and teeth shape. In *Glandularia guaranitica* the calyx is hispid with retrorse hairs and it has triangular teeth. In *G. phlogiflora* the calyx is glandular-hirsute with long hispid hairs over the nerves and it has acute teeth. In *G. megapotamica* the calyx is strigose with antrorse hairs and patelliform glands and it has mucronate teeth. Additionally, *G. guaranitica* differs from *G. phlogiflora* in the stem pubescence and shape of the floral bracts. The stem is glandular-hirsute in *G. phlogiflora*, with narrowly ovate floral bracts, 5–6 mm, while in *G. guaranitica* the stem is hispid (sometimes glandular), with ovate floral bracts, 1.5–3 mm. *Glandularia megapotamica* is distinguished by its strigose pubescence on the stems, leaves, and calyx.

Selected specimens examined. BRAZIL. **Rio Grande do Sul:** Pelotas, Morro Redondo, *Pedersen 12592* (CTES, SI). **Santa Catarina:** São Joaquim, banks of Rio Taimbezinho, 1 km E of Bom Jardim da Serra (Cambajuba), *Smith 10203* (SI).

- 9. *Glandularia hasslerana*** (Briq.) Tronc., *Darwiniana* 19: 738. 1975. Basionym: *Verbena hasslerana* Briq., *Bull. Herb. Boissier ser. 2*, 4: 1056. 1904. TYPE: Paraguay. “prope Tobaty in palude,” Sep. [sine anno], *E. Hassler 6464* (lectotype, designated by Peralta & Múlgura [2011: 381], G [bc] G00077157!; isoelectotypes, G [bc] G00077158!, G [bc] G00077156!, MICH [bc] MICH0001108434!, S [bc] S04-2435!, UC [bc] UC000944360!, US [bc] US00000118696!). Figure 9.

Verbena pulchra Moldenke, *Phytologia* 2: 476. 1948. *Glandularia pulchra* (Moldenke) Botta, syn. nov. *Hickenia* 2: 128. 1995. TYPE: Brazil. Paraná: Calmon, 13 Mar. 1910, *K. F. Dusén 9334* (holotype, S [bc] S04-2447!; isotypes, NY [bc] NY000138312!, SI [bc] SI00003918!).

Plants suffruticose, up to 100 cm tall, stems erect, 4-angled, pubescence hispid, retrorse. Leaves petiolate, petiole 8–25 mm, blade 30–150 × 70–35 mm, entire, elliptic to narrowly ovate, apex acute, base attenuate, margin irregularly serrate-crenate, both surfaces strigose. Inflorescences arranged in monobotrya or pleiobotrya with frondose trimerous paracladia, surpassing the principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 30–150 mm. Floral bracts 5–11 mm, narrowly ovate, apex acute,

strigose or subglabrous with ciliate margin. Calyx 10–14 mm, hispid over nerves, teeth aristate, 2–4 mm. Corolla 18–20 mm, externally villous or with glandular hairs, violet, lilac, or pink. Superior pair of stamens with sessile glandular appendages or none, not surpassing thecae, not surpassing corolla mouth, style 15–17 mm. Cluses 4–5 mm, apex rostrate.

Common names. Flor vovia.

Distribution and ecology. *Glandularia hasslerana* is found in southern Brazil, Paraguay, northeastern Argentina, and Uruguay. It inhabits marshy, sandy, wet, and rocky fields, up to 1000 m.

Notes. *Glandularia hasslerana* shares with *G. guaibensis* and *G. paulensis* the presence of ovate to elliptic leaf blades with serrate, crenate, or dentate margins, an acute apex, and non-glandular pubescence on floral bracts and calyces. *Glandularia hasslerana* is distinguished from *G. guaibensis* and *G. paulensis* by its cluses with rostrate apex and calyx teeth 2–4 mm long. Both *G. guaibensis* and *G. paulensis* have round apex cluses and calyx teeth shorter than 2 mm.

Glandularia hasslerana is similar to *G. nana* in leaf morphology and in having cluses with rostrate apex. *Glandularia nana* is distinguished by having smaller floral bracts (3.5–4 mm vs. 5–11 mm) and hispid-glandular pubescence on floral bracts and calyx.

Glandularia hasslerana is also similar to *G. scrobiculata*; however, the latter is distinguished by its glandular pubescence on the calyx and ovate triangular leaf blades with truncate base.

The study of the type material of *Verbena pulchra*, along with the analysis of several specimens, demonstrates that *V. pulchra* is a synonym of *Glandularia hasslerana*.

Selected specimens examined. BRAZIL. **Rio Grande do Sul:** Gr. Piratini Santo Ângelo, *Hagelund 8139* (SI). **Santa Catarina:** 10 km E de Ponte Serrada, *Krapovickas 33701* (CTES).

- 10. *Glandularia hatschbachii*** (Moldenke) N. O’Leary & P. Peralta, *Darwiniana* 45: 224. 2007. Basionym: *Verbena hatschbachii* Moldenke, *Lloydia* 13: 226. 1950. TYPE: Brazil. Paraná: Piraquara, 13 Nov. 1949, *G. Hatschbach 1621* (holotype, NY [bc] NY00138271!; isotypes, MBM!, SI [bc] SI0003865!). Figure 10.

Prostrate herb, stems decumbent with ascending floral branches, pubescence subglabrous to lightly

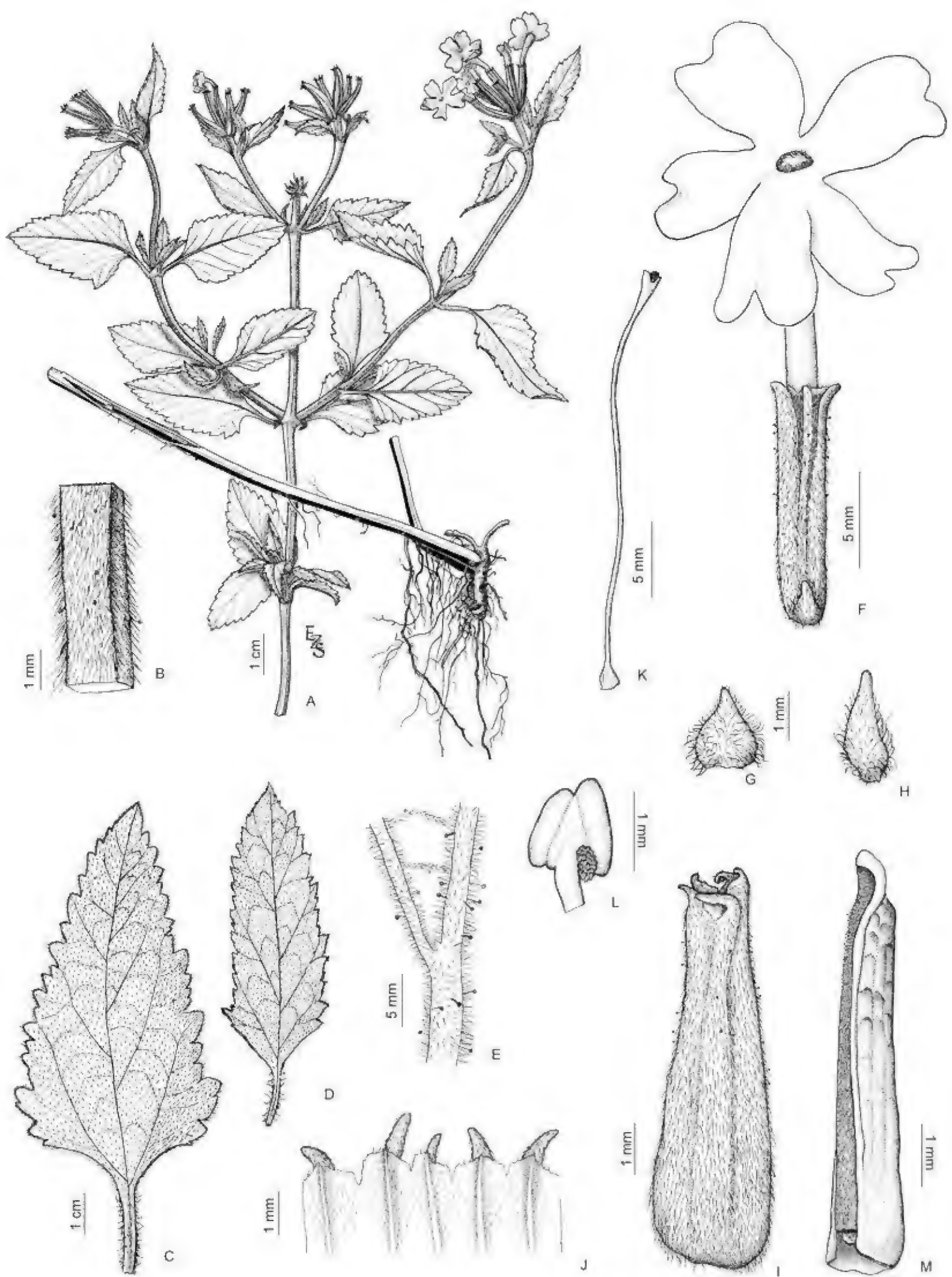


Figure 8. *Glandularia guaranitica* Tronc. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Basal leaf, adaxial surface. —D. Apical leaf, adaxial surface. —E. Detail of leaf pubescence, abaxial surface. —F. Flower with floral bract. —G, H. Floral bracts. —I. Fructiferous calyx. —J. Calyx extended, apical part, inner surface. —K. Gynoecia. —L. Superior stamen. —M. Cluse, lateral face. A–M from *Burkart 8028* (SI).

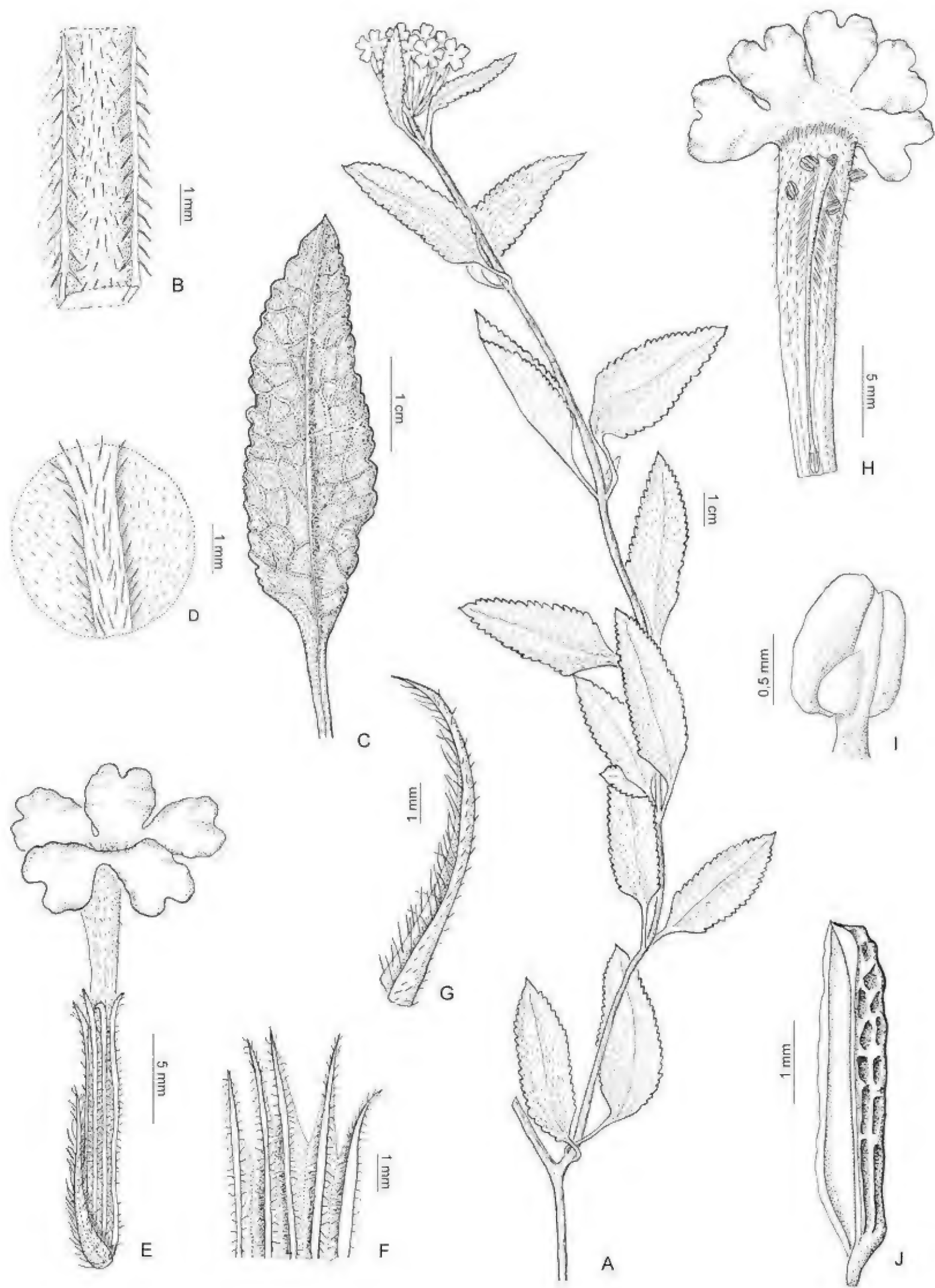


Figure 9. *Glandularia hasslerana* (Briq.) Tronc. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, abaxial surface. —E. Flower with floral bract. —F. Calyx extended, apical part, outer surface. —G. Floral bract. —H. Corolla opened with androecia and gynoecia. —I. Superior stamen. —J. Cluse, lateral face. A–J from *Krapovickas 21608* (SI).

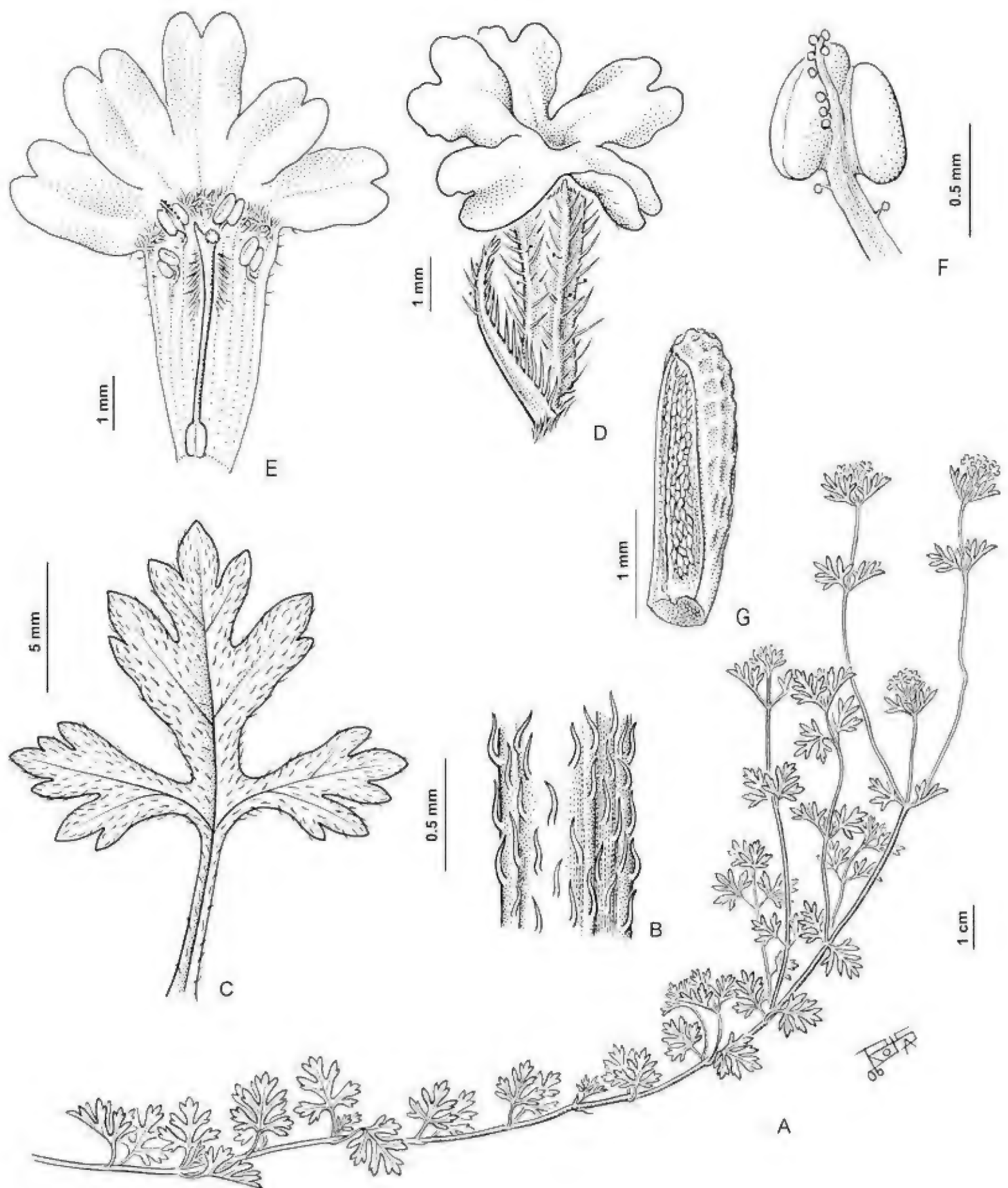


Figure 10. *Glandularia hatschbachii* (Moldenke) N. O'Leary & P. Peralta. —A. Branch general, aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Flower with floral bract. —E. Corolla opened with androecia and gynoecia. —F. Superior stamen. —G. Cluse, lateral face. A–G from *Smith 7376* (SI).

strigose. Leaves petiolate, petiole 5–10 mm, blade 10–20 × 5–20 mm, 3-parted, segments lobed to parted, apex acute, base truncate to acute, both surfaces strigose. Inflorescences arranged in mono-botrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence, represented by dense paucifloral spikes, umbelliform in anthesis, enlarged in fruit, peduncle 5–20 mm. Floral bracts

4–5 mm, narrowly ovate, apex acute, subglabrous, hispid margin. Calyx 4–5 mm, hispid over nerves, sometimes with some glandular hairs, teeth briefly triangular, 0.5 mm. Corolla 5–6 mm, externally subglabrous, violet or blue. Superior pair of stamens with glandular appendages, surpassing thecae, slightly surpassing corolla mouth, style 4 mm. Cluses 2 mm, apex round.

Distribution and ecology. *Glandularia hatschbachii* is endemic to Brazil, found in the states of Paraná and Santa Catarina.

Notes. *Glandularia hatschbachii* shares with *G. jordanensis* the prostrate habit, non-showy paucifloral inflorescences, short corolla tubes, which are slightly longer than the calyx, and the presence of glandular appendages, slightly surpassing the corolla mouth. *Glandularia hatschbachii* differs in having subglabrous to lightly strigose pubescence and narrowly ovate floral bracts similar in length to the calyx, while *G. jordanensis* has hispid-strigose pubescence and ovate floral bracts shorter than the calyx.

Selected specimens examined. BRAZIL. **Paraná:** São José dos Pinhães, Rio Pequeno, *Hatschbach* 22833 (SI). **Santa Catarina:** Campo Alegre, morro Iquererim, *Smith* 7376 (SI).

11. *Glandularia herteri* (Moldenke) Tronc., *Darwiniana* 19(2–4): 738. 1975. *Verbena herteri* Moldenke, *Revista Sudamer. Bot.* 5: 42–43. 1937. TYPE: Uruguay. Artigas: Santa Rosa Cuareim, 50 m, Nov. 1927, *W. G. Herter* 979 (holotype, NY [bc] NY00138272!; isotypes, B [bc] B10-0247929!, B [bc] B10-02479230!, M [bc] M000111663!, MO [bc] M0000503917!, S [bc] S04-2436!, SI [bc] SI00003789!, U [bc] U0007046!, UC [bc] UC000323326!, US [bc] US0000118698!, WIS [bc] WIS0256126!). Figure 11.

Prostrate herb, stems decumbent, floral branches erect, up to 20–30 cm tall, pubescence subglabrous to lightly strigose. Leaves petiolate, petiole 4–10 mm, blade 8–20 × 7–15 mm, entire, ovate, apex obtuse, base cuneate, margin lobated, both surfaces glabrous. Inflorescences arranged in monobotrya, inflorescences represented by dense multifloral spikes, enlarged in fructification, peduncles 30–100 mm. Floral bracts 4–6 mm, ovate, apex acute, subglabrous, pilose margin. Calyx 6 mm, strigose over nerves, with glandular hairs, teeth acute, 0.5–1 mm. Corolla 11 mm, externally glabrous, violet, lilac, or blue. Superior pair of stamens with glandular appendages, surpassing thecae, slightly surpassing corolla mouth, style 10 mm. Cluses 2–2.5 mm, apex round.

Distribution and ecology. A few collections are known for *Glandularia herteri*, all from northern Uruguay and southern Brazil, in the state of Rio Grande do Sul. It is found in grasslands and moist soils.

Notes. *Glandularia herteri* is distinguished by its subglabrous to lightly strigose pubescence and leaves

with glabrous surfaces, quite different from the other *Glandularia* species.

Selected specimens examined. BRAZIL. **Rio Grande do Sul:** Uruguaiana, rd. from Uruguaiana to Quaraí, by the arroio Garupá, *Pedersen* 12554 (CTES, MBM, SI).

12. *Glandularia humifusa* (Cham.) Botta, *Hickenia* 2: 128. 1995. *Verbena humifusa* Cham., *Linnaea* 7: 271. 1832. TYPE: [Brazil] “*Brazilia meridionales*,” *F. Sellow s.n.* (lectotype, designated here, HAL [bc] HAL00098279!). Figure 12.

Verbena reineckii Moldenke, *Phytologia* 1: 480. 1940. TYPE: Brazil. Rio Grande do Sul: Porto Alegre, Nov. 1897, *J. C. Reineck* 21 (holotype, POM not seen; isotypes, NY not seen, SI image!).

Prostrate herb, stems decumbent, floral branches erect, pubescence lightly hispid. Leaves briefly petiolate, petiole 2–3 mm, blade 15–17 × 9–11 mm, 3-lobed, apex obtuse, base cuneate, margin dentate, both surfaces strigose, principally over nerves. Inflorescences arranged in pleiobotrya with frondose paracladia, surpassing the principal inflorescence or not, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 35–40 mm. Floral bracts 3–3.5 mm, ovate, apex acute, strigose with glandular hairs. Calyx 7.5–8.5 mm, densely hispid mainly over nerves, with glandular hairs, teeth acute, 1 mm. Corolla 12.5–13 mm, externally glabrous, lilac or pink. Superior pair of stamens with vestigial glandular appendages or none, not surpassing thecae, not surpassing corolla mouth, style 10 mm. Cluses 4 mm, apex round.

Distribution and ecology. *Glandularia humifusa* is endemic to Brazil, found only in the state of Rio Grande do Sul.

Notes. *Glandularia humifusa* is distinguished from *G. marruboides* by its floral bracts 3–3.5 mm long and trilobed leaves; the floral bracts are 5.5–6 mm long and leaves are entire in *G. marruboides*.

A suitable lectotype was selected for *Verbena humifusa* among the original material collected by Sellow housed at HAL, with the handwritten note, “*Verbena humifusa* N,” typical of Chamisso’s new species.

Specimen examined. BRAZIL. **Rio Grande do Sul:** Cachoeira do Sul, Durasnal, *Sobral* 2590 (SI).

13. *Glandularia jordanensis* (Moldenke) N. O’Leary & P. Peralta, *Darwiniana* 45: 228. 2007. Basionym: *Verbena jordanensis* Moldenke, *Phytologia* 2: 237. 1947. TYPE: Brazil. São Paulo: Campos do Jordão, Apr. 1945, *J. E. Leite* 3474

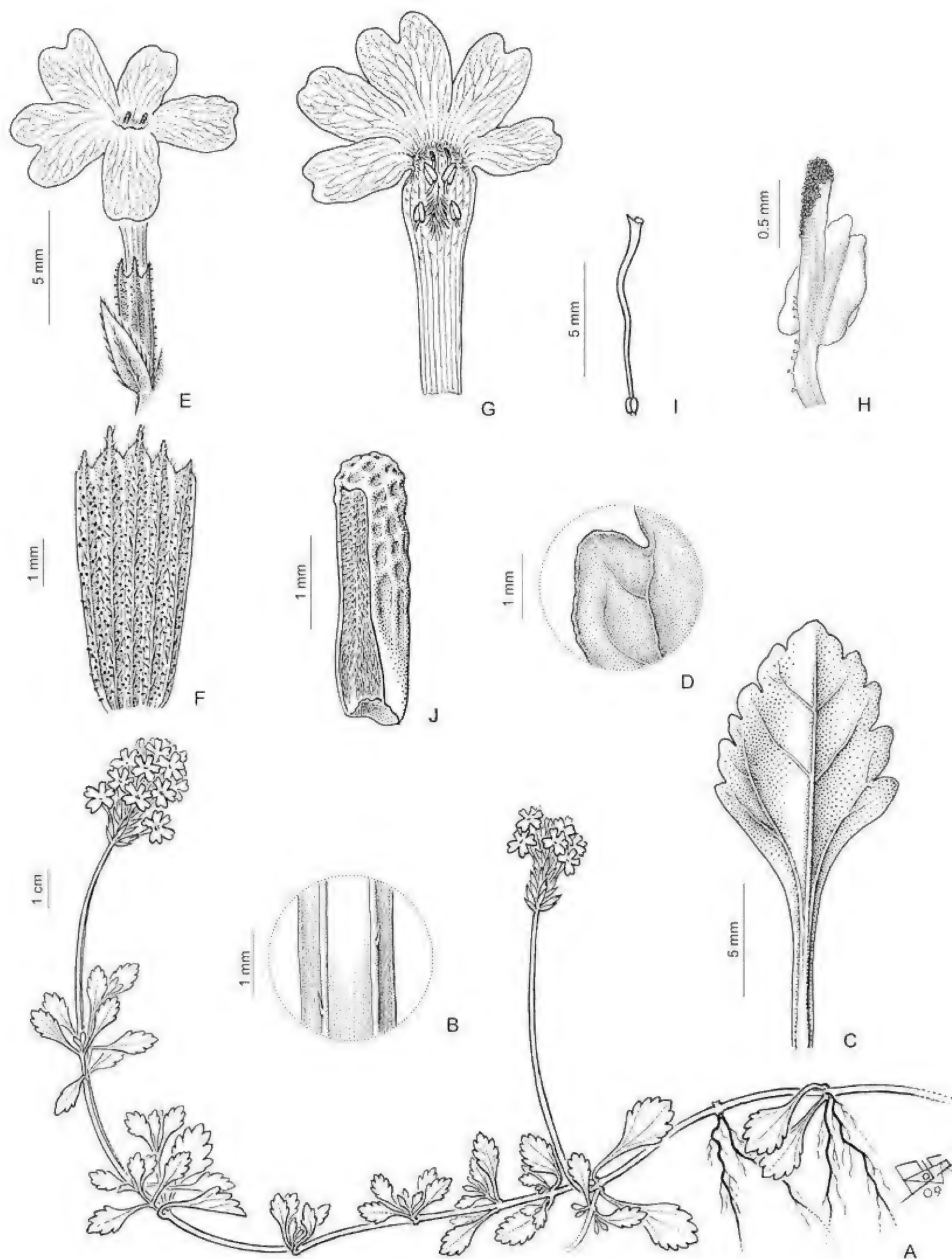


Figure 11. *Glandularia herteri* (Moldenke) Tronc. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, adaxial surface. —E. Flower with floral bract. —F. Calyx extended, outer surface. —G. Corolla opened with androecia. —H. Superior stamen. —I. Gynoecia. —J. Cluse, ventral face. A–J from *Pedersen 12554* (SI).

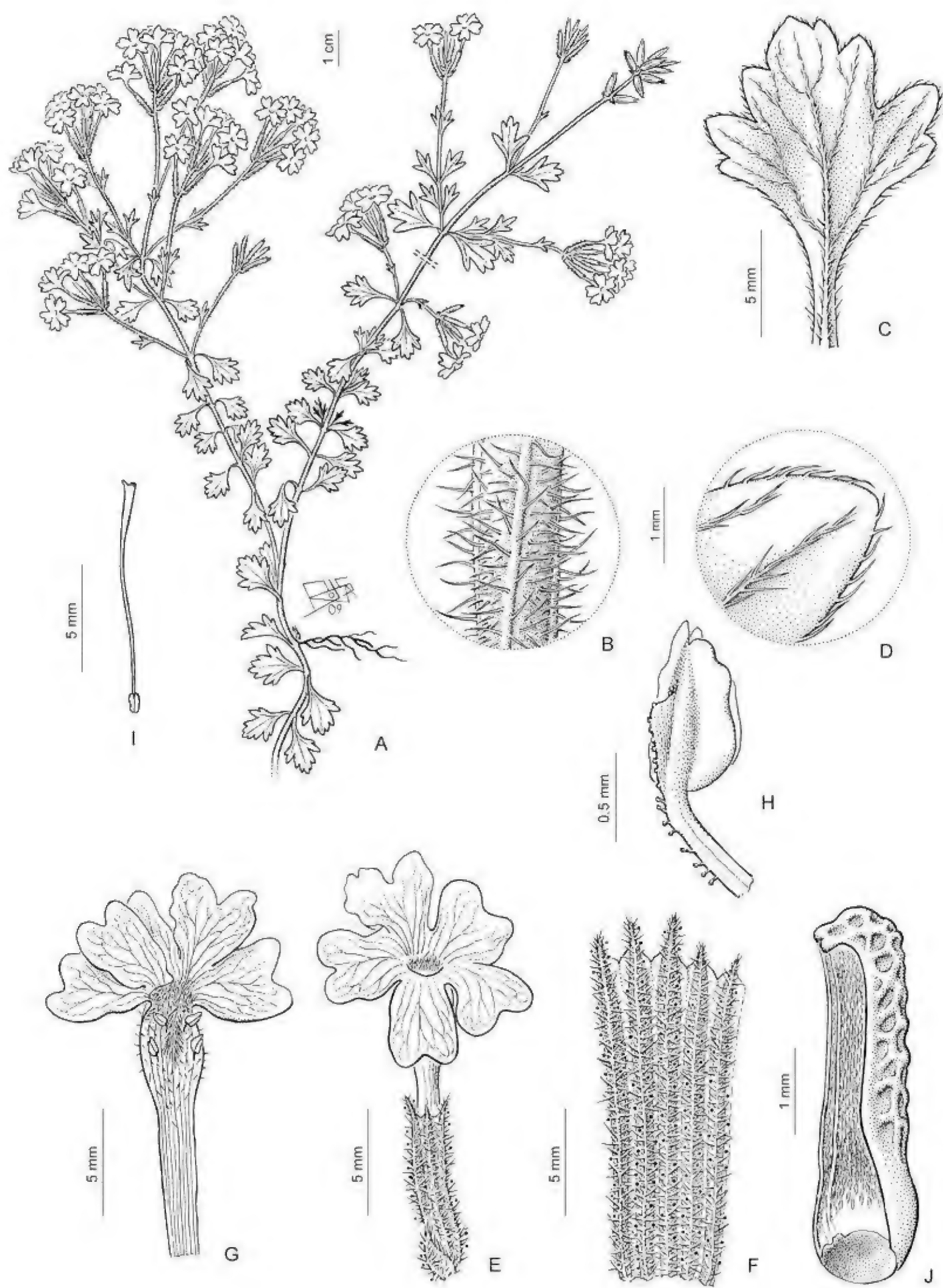


Figure 12. *Glandularia humifusa* (Cham.) Botta. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, adaxial surface. —E. Flower with floral bract. —F. Calyx extended, outer surface. —G. Corolla opened with androecia. —H. Superior stamen. —I. Gynoecia. —J. Cluse, lateral face. A–J from *Sobral* 2590 (SI).

(holotype, FCAB; isotypes, GH [bc] GH00096113!, NY [bc] NY00138279!, SI [bc] SI000003929!). Figure 13.

Verbena campestris Moldenke, Phytologia 3: 117. 1949. TYPE: Brazil. Santa Catarina: Campo dos Padres, 16 Dec. 1948, P. R. Reitz 2392 (holotype, NY [bc] NY000138250!; isotypes, SI [bc] SI00003833!, SI [bc] SI00003834!).

Verbena subpetiolata N. O'Leary, Ann. Missouri Bot. Gard. 94: 613. 2007, replacement name. Replaced synonym: *Verbena lobata* Vell. var. *sessilis* Moldenke, Phytologia 4: 292. 1953, non *Verbena sessilis* (Cham.) Kuntze, Revis. Gen. Pl. 3(2): 257. 1898. TYPE: Brazil. Paraná: S José dos Pinhais, Varzea, 2 Dec. 1952, G. Hatschbach 2876 (holotype, NY [bc] NY000138289!; isotype, SI [bc] SI00003867!).

Prostrate herb, stems decumbent, floral branches erect, up to 20 cm tall, pubescence hispid-strigose, sometimes with glandular hairs. Leaves briefly petiolate, petiole 5 mm, blade 10–20 × 5–20 mm, 3-lobed to 3-parted, apex acute to obtuse, base truncate, margin dentate, adaxial surface strigose, abaxial surface hispid-strigose, principally over the nerves. Inflorescences arranged in monobotrya or pleiobotrya, with frondose lateral paracladia, surpassing terminal inflorescence, inflorescences represented by paucifloral spikes, enlarged in fruit, peduncles 10–30 mm. Floral bracts 3–3.5 mm, ovate, apex acute, pilose margin. Calyx 4–5 mm, hispid over nerves, sometimes with glandular hairs, teeth triangular, 0.5–1 mm. Corolla 5–6 mm, externally villous, violet or blue. Superior pair of stamens with glandular appendages, surpassing thecae, surpassing corolla mouth, style 4 mm. Cluses 2 mm, apex round.

Distribution and ecology. *Glandularia jordanensis* is endemic to southern Brazil, found in the states of Paraná, Santa Catarina, and Rio Grande do Sul. The holotype of this species is from São Paulo; however, it is the only material known from this state. It inhabits grasslands and rocky hills at elevations between 780 and 1800 m.

Notes. *Glandularia jordanensis* is similar to *G. catharinae* and *G. hatschbachii*; see notes under these taxa.

Selected specimens examined. BRAZIL. **Paraná:** Palmas, Sete Butieiros, Hatschbach 30749 (MBM). **Rio Grande do Sul:** Rio Pardo, Palacios 976 (LIL). **Santa Catarina:** São José, Serra da Boa Vista, Reitz 5422 (HBR, SI).

14. *Glandularia lobata* (Vell.) P. Peralta & V. Thode, Rodriguésia 61(suppl.): 30. 2010. *Verbena lobata* Vell., Fl. Flumin. 18: 1825 [1829]; Icon. 1, Tab. 43, 1827 [1831]. TYPE: Vellozo,

1827 [1831]. Icon. 1, tab. 43 (lectotype, designated by O'Leary et al. [2007b: 609]). Figures 14, 15.

Plants suffruticose, 30–60(–160) cm tall, stems erect or decumbent with ascending floral branches, pubescence variable: hispid, strigose, hirsute or subglabrous, with or without glandular hairs. Leaves petiolate, petiole 5–10 mm, blade 30–60 × 20–40 mm, entire, ovate, triangular, and sometimes trilobed toward base, apex acute, base truncate or round, margin serrate-crenate with acuminate irregular teeth, abaxial surface hispid over nerves. Inflorescences arranged in pleiobotrya with bracteose paracladia with trimerous or tetramerous disposition, inflorescences represented by dense multifloral or paucifloral spikes, enlarged in fruit, peduncles 100 mm. Floral bracts 2–4 mm, ovate, apex acute. Calyx 4–5 mm, hispid with or without glandular hairs, teeth triangular, 0.5–1 mm. Corolla 5–7 mm, externally villous, violet, pink, or blue. Superior pair of stamens with glandular appendages or none, surpassing thecae or not, not surpassing corolla mouth, style 4 mm. Cluses 2 mm, apex round.

KEY TO THE *GLANDULARIA LOBATA* VARIETIES

1. Stems hispid or hirsute, patent hairs up to 3 mm long, floral bract and calyx with glandular hairs; paracladia with tetramerous disposition.....
... *G. lobata* (Vell.) P. Peralta & V. Thode var. *lobata*
- 1'. Stems subglabrous, adpressed hairs shorter than 3 mm long, floral bract and calyx without glandular hairs; paracladia with trimerous disposition *G. lobata* var. *glabrata*
(Moldenke) P. Peralta & V. Thode

14a. *Glandularia lobata* (Vell.) P. Peralta & V. Thode var. **lobata**. Figure 14.

Verbena buchnera Vell., Fl. Flumin. 17: 1825 [1829]; Icon. 1, tab. 42, 1827 [1831]. TYPE: Vellozo, 1827 [1831]. Icon. 1, tab. 42 (lectotype, designated by O'Leary et al. [2007b: 611]).

Verbena lobata Vell. var. *hirsuta* Moldenke, Phytologia 2: 423. 1948. TYPE: Brazil. Rio Grande do Sul: Pinhal prope Santa Maria, 27 Nov. 1902, G. O. A. Malme 1260 (holotype, S; isotype, NY [bc] NY00138288!).

Distribution and ecology. *Glandularia lobata* is known from northeastern Argentina, southern and southeastern Brazil, and eastern Paraguay. It inhabits open fields, forest margins, and wet or rocky fields.

Notes. The presence of paracladia with a tetramerous disposition in *Glandularia lobata* is an exclusive arrangement compared with the rest of the *Glandularia* species.

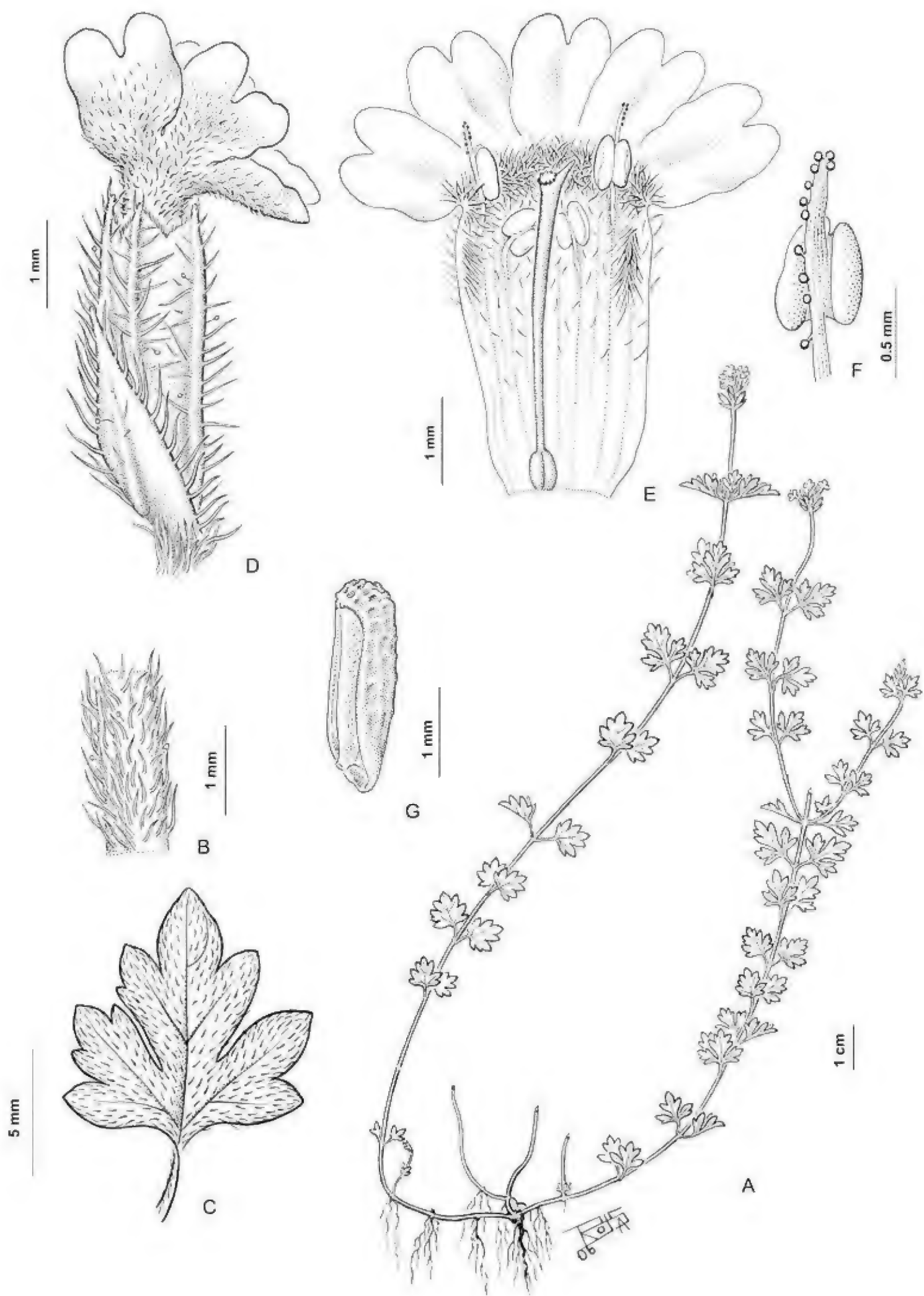


Figure 13. *Glandularia jordanensis* (Moldenke) N. O'Leary & P. Peralta. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Flower with floral bract. —E. Corolla opened with androecia and gynoecia. —F. Superior stamen. —G. Cluse, lateral face. A–G from Reitz 5422 (SI).

Selected material examined. BRAZIL. **Espírito Santo:** Alegre, Pico da Bandeira, Serra do Caparaó, Irwin 2783 (NY). **Minas Gerais:** Caldas, in ripa anmis Rio Verale, Regnell III1619 (NY). **Paraná:** Curitiba, Barigui, Hatschbach 52324 (SI); São José dos Pinhais, Lagoinha, Hatschbach 2873 (SI). **Rio de Janeiro:** Terezópolis, faz. da Boa Fé, Emygdio 34 (NY). **Rio Grande do Sul:** Giruá, Granja Sodal, Hagelund 4741 (SI). **Santa Catarina:**

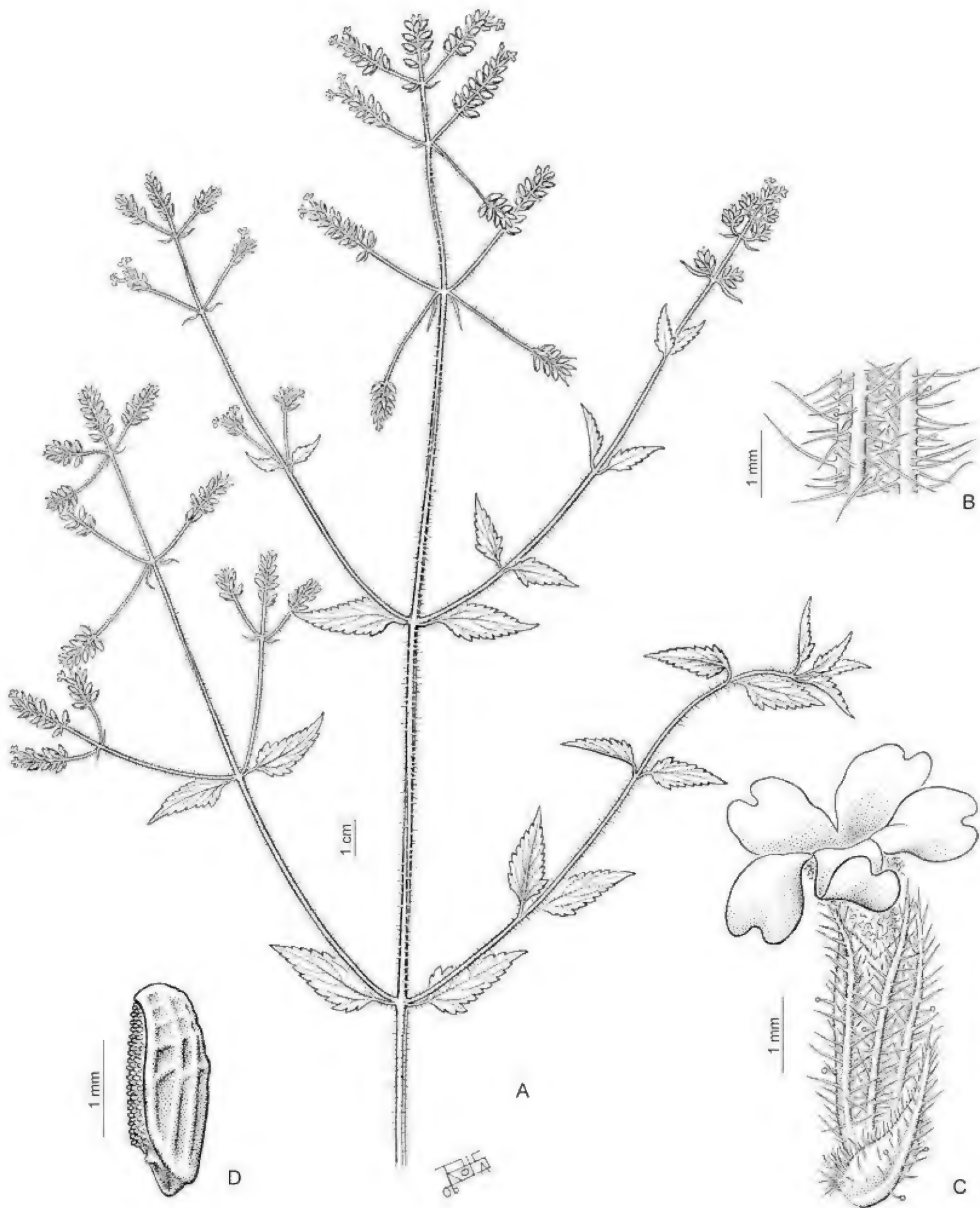


Figure 14. *Glandularia lobata* (Vell.) P. Peralta & V. Thode. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Flower with floral bract. —D. Cluse, lateral face. A–D from *Hatschbach* 2873 (SI).

Araranguá, Sanga D’Anta, Capoeira, *Reitz c1215* (SI). **São Paulo:** Ubatuba, III. 1940, *A. P. Viégas s.n.* (NY 584709).

14b. *Glandularia lobata* var. *glabrata* (Moldenke) P. Peralta & V. Thode, *Rodriguésia* 61(suppl.): 30. 2010. Basionym: *Verbena lobata* Vell. var.

glabrata Moldenke, *Phytologia* 3: 118. 1949. TYPE: Brazil. Rio Grande do Sul: S Fco. de Paula, 14 June 1937, *B. Rambo 2816* (holotype, NY [bc] NY00138287!; isotypes, LIL [bc] LIL0001375!, LIL [bc] LIL0001376!). Figure 15.

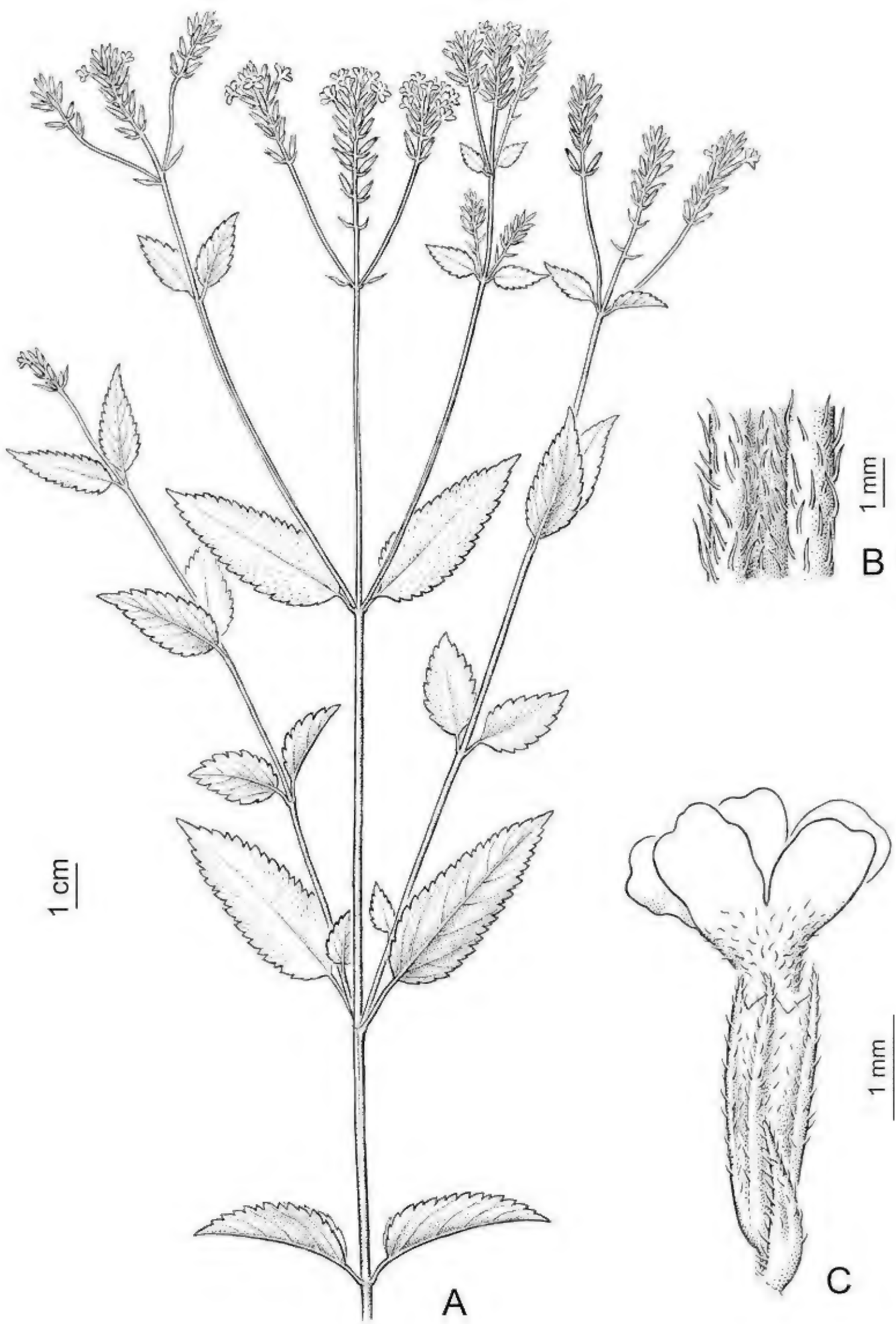


Figure 15. *Glandularia lobata* var. *glabrata* (Moldenke) P. Peralta & V. Thode. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Flower with floral bract. A–C from *Capell 8* (SI).

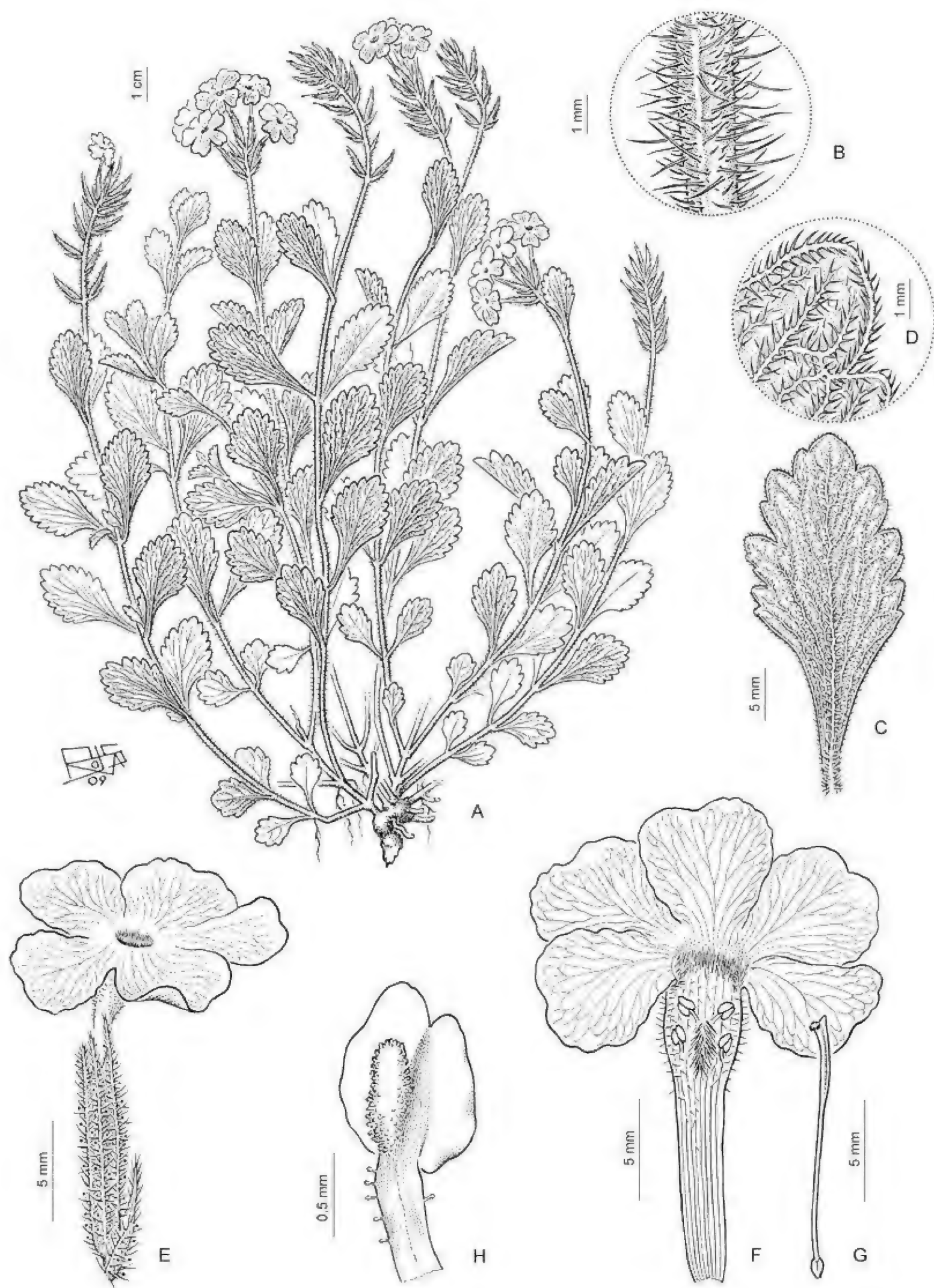


Figure 16. *Glandularia marrubioides* (Cham.) Tronc. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, abaxial surface. —E. Flower with floral bract. —F. Corolla opened with androecia. —G. Gynoecia. —H. Superior stamen. A–H from *Rosengurtt* 9059 (SI).



Figure 17. *Glandularia megapotamica* (Spreng.) Cabrera & G. Dawson. —A, B. Branch general, aspect. —C. Corolla. —D, E. Floral bracts. —F. Calyx and floral bract. —G, H. Superior pair of stamens. —I. Gynoecia. —J. Fructiferous calyx. —K. Cluse, ventral face. —L. Cluse, lateral face. A–L from *Burkart 5127* (SI).

Distribution and ecology. The variety *glabrata* has a more restricted geographical distribution than the typical variety, being found only in southern and southeastern Brazil.

Selected material examined. BRAZIL. **Minas Gerais:** Caparaó, *Porto 1147* (NY). **Paraná:** Morretes, Alto da Serra do Mar (Corvo), 48 km de Curitiba na estrada Curitiba, *Tessmann 3033* (NY). **Rio de Janeiro:** Serra dos Órgãos,

Capell 8 (SI). **Santa Catarina:** Campo Alegre, Morro do Iquererim, *Reitz* 5226 (SI). **São Paulo:** Campos do Jordão, *P. C. Porto* 2984 (NY).

- 15. *Glandularia marruboides*** (Cham.) Tronc., *Darwiniana* 19(2–4): 738. 1975. Basionym: *Verbena marruboides* Cham., *Linnaea* 7: 269. 1832. TYPE: *Brazilia meridionalis*, s.d., *F. Sellow* (lectotype, designated by O'Leary et al. [2013a: 63], HAL [bc] HAL00098278!, isolecotypes, BR [bc] BR005503926!, K [bc] K000470549!). Figure 16.

Verbena humifusa var. *reticulata* Moldenke, *Phytologia* 2: 423. 1948. TYPE: Brazil. Paraná: in campo into Lago et Desiro Ribas site, 800 m.s.m., 22 Oct. 1914, *P. Dusén* 15714 (holotype, S [bc] S04-2437!; isotypes, F [bc] F0074516!, NY [bc] NY00138274!, US [bc] US000118700!).

Prostrate herb, stems decumbent with ascending floral branches, pubescence glandular-hispid. Leaves sessile, blade 15–25 × 8–15 mm, entire, obovate, apex obtuse, base cuneate, margin dentate, adaxial surface strigose and hispid, abaxial surface hispid with prominent nerves. Inflorescences arranged in monobotrya, less frequently pleiobotrya with frondose paracladia, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 15–45 mm. Floral bracts 5.5–6 mm, narrowly ovate, apex acute, hispid-glandular, ciliate margin. Calyx 8.5–10.5 mm, hispid, with glandular hairs, teeth acute, 2 mm. Corolla 13–15 mm, externally villous, violet or lilac. Superior pair of stamens with vestigial glandular appendages, not surpassing thecae, style 10 mm. Cluses 4 mm, apex round.

Distribution and ecology. *Glandularia marruboides* is endemic to southern Brazil. Moldenke (1964a) mentioned the presence of this species in Argentina and Uruguay; however, it has not been collected there. It grows in rocky, sunny fields, dry fields, and dry riverbeds, at elevations between 50 and 1000 m.

Notes. The abaxial leaf surface of *Glandularia marruboides* has prominent nerves; this is a diagnostic feature. This species is similar to *G. humifusa*; see notes under that species.

Selected material examined. BRAZIL. **Paraná:** Ponta Grossa, Passo de Pupo, *Hatschbach* 17120 (LP, MBM, NY, SI). **Rio Grande do Sul:** Caseiros a Lagoa Vermelha, *Rosengurtt* 9059 (SI). **Santa Catarina:** Lajes, Morro do Pinheiro Seco, *Reitz* 16314 (SI).

- 16. *Glandularia megapotamica*** (Spreng.) Cabrera & G. Dawson, *Revista. Mus. La Plata, Secc. Bot.* 5:

357. 1944. Basionym: *Verbena megapotamica* Spreng., *Syst. Veg.* 4(2): 230–231. 1827. TYPE: Brazil. Rio Grande do Sul: s.d., *F. Sellow* 13 (lectotype, designated by Peralta & Múlgura [2011: 383], K, not seen). Figure 17.

Verbena phlogiflora var. *mucilenta* Schauer, DC. *Prodr.* 11: 538. 1847. TYPE: *Brazilia*, s.d., *F. Sellow* s.n. (lectotype, designated by Peralta & Múlgura [2011, 383], K [bc] K000470724!; isolecotype, E [bc] E000373264!).

Suffruticose plants, 50–120 cm tall, stems erect, sometimes decumbent, pubescence strigose, retrorse hairs. Leaves briefly petiolate, petiole 10–15 mm, blade 25–70 × 8–12 mm, entire, elliptic to narrowly ovate, apex acute or obtuse, base cuneate, margin serrate, strigose on both surfaces. Inflorescences arranged in pleiobotrya, with 1 or 2 frondose lateral paracladia, surpassing terminal inflorescence, inflorescences represented by dense multifloral spikes, not enlarged in fruit, peduncles 80–100 mm. Floral bracts 3–5 mm, ovate, apex acute, pubescence strigose with patelliform glands, ciliate margin. Calyx 10–12 mm, strigose with patelliform glands, antrorse hairs, teeth mucronate, 0.5 mm. Corolla 13–16 mm, externally with glandular hairs at apical part, the rest glabrous, violet. Superior pair of stamens with subsessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 13–15 mm. Cluses 4–4.5 mm, apex rostrate.

Distribution and ecology. *Glandularia megapotamica* grows in northeastern Argentina, southern Brazil, Paraguay, and Uruguay. It has been found in moist soils, grasslands, gallery forests, and forest margins, at lower elevations.

Notes. *Glandularia megapotamica* is similar to *G. guaranitica* and *G. phlogiflora*; see notes under *G. guaranitica*.

Selected material examined. BRAZIL. **Minas Gerais:** Carandaí, *Duarte* 6309 (SI). **Paraná:** Telêmaco Borba, faz. Monte Alegre, *S. I. de Azevedo* 508 (FUEL 41903). **Rio Grande do Sul:** Piratini, *Thode* 122 (ICN). **Santa Catarina:** Bom Jardim da Serra, faz. da Laranja, Bom Jardim, S Joaquim, *Reitz* 7707 (NY).

- 17. *Glandularia nana*** (Moldenke) Tronc., *Darwiniana* 19: 738. 1975. Basionym: *Verbena nana* Moldenke, *Phytologia* 3: 119. 1949. TYPE: Argentina. Formosa: Dpto. Pirané, 23 Oct. 1945, *I. Morel* 117 (holotype, NY [bc] NY000138297!; isotypes, LIL [bc] LIL0001386!, LIL [bc] LIL0001385!, SI [bc] SI00003907!). Figure 18.

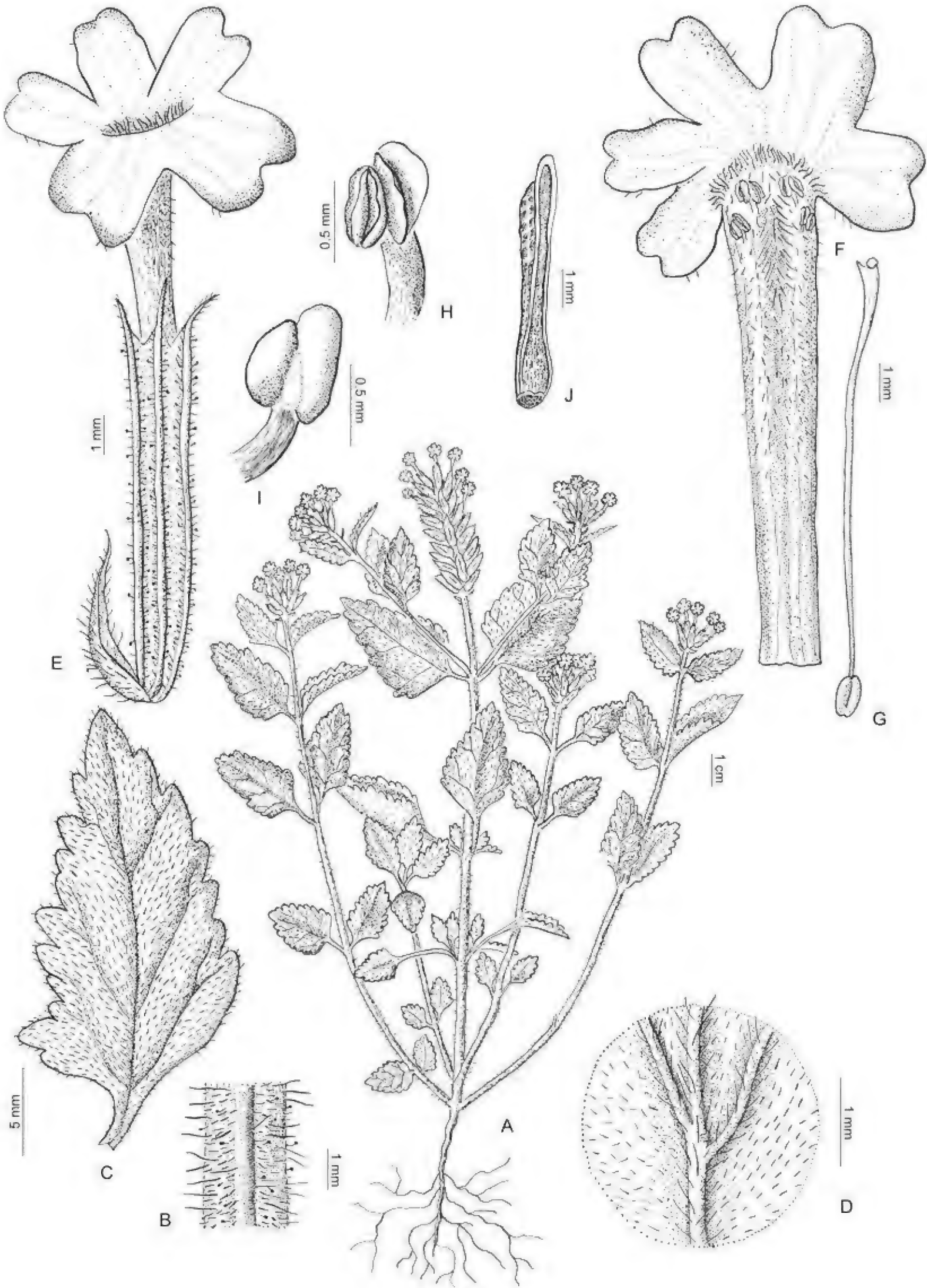


Figure 18. *Glandularia nana* (Moldenke) Tronc. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, abaxial surface. —E. Flower with floral bract. —F. Corolla opened with androecia. —G. Gynoecia. —H, I. Superior pair of stamens. —J. Cluse, ventral face. A–J from Martínez 9693 (SI).

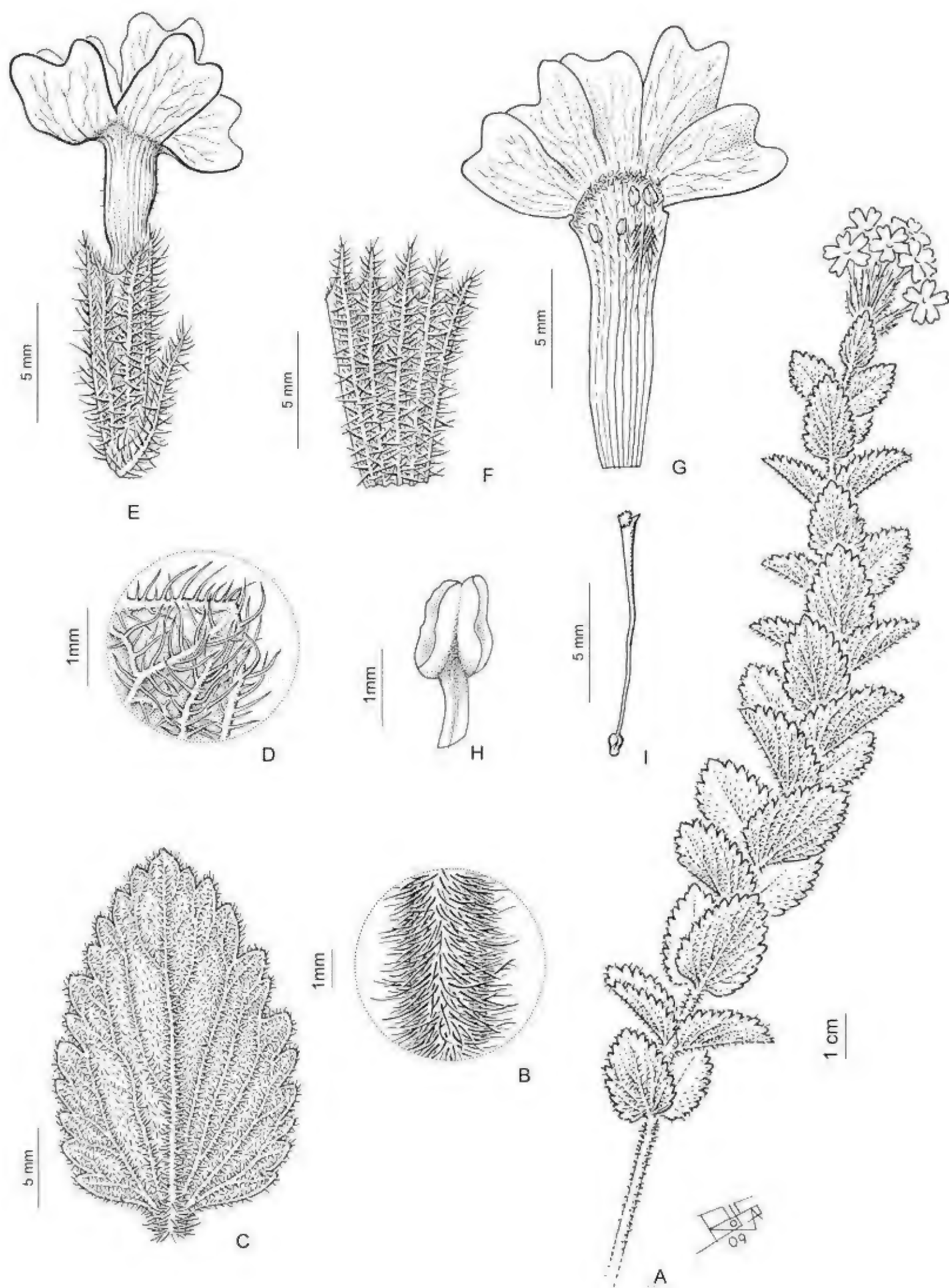


Figure 19. *Glandularia paulensis* (Moldenke) A. L. R. Oliveira & Salimena. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Detail of leaf pubescence, abaxial surface. —E. Flower with floral bract. —F. Calyx extended, outer surface. —G. Corolla opened with androecia. —H. Superior stamen. —I. Gynoecia. A–I from Souza 5753 (SI).

Verbena pulchra Moldenke var. *paludicola* Moldenke, syn. nov. Phytologia 2: 477. 1948. TYPE: Uruguay. Reanqueras, Rivera, 24/27 Mar. 1907, *G. Herter* 99937 (holotype, NY [bc] NY00138313!).

Verbena hasslerana var. *glandulosa* Moldenke, syn. nov. Phytologia 25: 368. 1973. TYPE: Brazil. Mato Grosso do Sul: Miranda, near rio Miranda, 17 Apr. 1972, *G. Hatschbach* 29600 (holotype, TEX [bc] TEX00375232!).

Prostrate herb or suffrutescent plants, stems erect or decumbent with ascending floral branches, 20–60 cm tall, stems erect, pubescence hirsute-glandular. Leaves petiolate, petiole 8–12 mm, blade 20–40 × 15–20 mm, entire, ovate to triangular, apex acute, base truncate, margin serrate, both surfaces strigose. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence or not, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 7–25 mm. Floral bracts 3.5–4 mm, narrowly ovate, apex acute, hispid-glandular. Calyx 9.5–10 mm, hispid-glandular, teeth acute, 1.5–2 mm. Corolla 12–15 mm, externally villous or with glandular hairs, lilac or pink. Superior pair of stamens unappendaged, style 10–12 mm. Cluses 4–6 mm, apex rostrate.

Distribution and ecology. *Glandularia nana* is found in southern Bolivia, northern Argentina, southern Brazil, and Paraguay. It grows in saline clay, wetlands, grasslands, and riparian areas.

Notes. *Glandularia nana* is similar to *G. scrobiculata* by its presence of leaf blades ovate to triangular, with truncate base; however, the former has rostrate apex cluses, while the latter has round apex cluses.

Glandularia nana can also be confused with *G. tomophylla*, with both species having morphologically similar leaves. Nonetheless, *G. tomophylla* can be distinguished by the stamens with glandular appendages, whereas *G. nana* has non-appendaged stamens.

Glandularia nana can be confused with *G. peruviana* and *G. tweediana* because each of those three species has entire leaves and an unappendaged superior pair of stamens. However, *G. peruviana* and *G. tweediana* differ in having round apex cluses.

Glandularia nana is also similar to *G. hasslerana*; see notes under that taxon.

The analyses of the type material of *Verbena pulchra* var. *paludicola* and *V. hasslerana* var. *glandulosa* demonstrated that both are synonyms of *Glandularia nana*.

Selected material examined. BRAZIL. **Mato Grosso do Sul:** Corumbá, faz. Acurizal, Nabileque, Pantanal, *Pott* 3866 (SI). **Rio Grande do Sul:** Quaraí, Serra Javaó,

Pedersen 12556 (SI). **Santa Catarina:** Araranguá, Curralinhos, *Reitz* C. 882 (SI).

18. *Glandularia paulensis* (Moldenke) A. L. R. Oliveira & Salimena, Bol. Bot. Univ. São Paulo 27(2): 149–151. 2009. Basionym: *Verbena paulensis* Moldenke, Phytologia 3: 426. 1951. TYPE: Brazil. São Paulo: Campos do Jordão, Jan. 1944, *E. Frederichs* s.n. (holotype, PACA-27901!; isotypes, NY [bc] NY00138309!, SI!). Figure 19.

Plants suffrutescent, up to 200 cm tall, stems erect, pubescence hirsute. Leaves sessile, blade 15–25 × 12–22 mm, entire, ovate, apex acute or obtuse, base truncate, margin irregularly dentate, pubescence dense hirsute on both surfaces. Inflorescences arranged in monobotrya, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 20–50 mm. Floral bracts 6–8 mm, narrowly ovate, apex acute, pubescence hirsute. Calyx 9 mm, densely hirsute, teeth acute, 1–2 mm. Corolla 10–11 mm, externally villous, violet. Superior pair of stamens unappendaged, style 8 mm. Cluses 3–4 mm, apex round.

Distribution and ecology. *Glandularia paulensis* is endemic to São Paulo, Brazil. It is found mostly in disturbed areas up to 2000 m elevation.

Notes. *Glandularia paulensis* is similar to *G. guaibensis*. These species have different geographical distributions. *Glandularia guaibensis* is endemic to Rio Grande do Sul and *G. paulensis* to São Paulo. Additionally, *G. guaibensis* has calyx teeth that are mucronate to triangular and 0.5 mm long, and a superior pair of stamens with glandular pedicellate appendages, while *G. paulensis* has calyx teeth that are acute, 1–2 mm long, and a superior pair of stamens unappendaged. *Glandularia paulensis* is also similar to *G. hasslerana*; see notes under this species.

Selected material examined. BRAZIL. **São Paulo:** São Bento do Sapucaí, Pedra do Bauzinho, *Souza* 5753 (ESA, SI).

19. *Glandularia peruviana* (L.) Small, Manual S. E. Fl.: 1139. 1933. Basionym: *Erinus peruvianus* L., Sp. Pl. ed. 1, 1: 630. 1753. *Verbena peruviana* (L.) Britton, Ann. New York Acad. Sci. 7: 197. 1893. TYPE: Feuillée, J. Obs. Phys. Math. Bot. [3]: tab. 25, fig. 3. 1725 (lectotype, designated by Moldenke [1964b: 319], tab. 25, fig. 3 in Feuillée, 1725). Figure 20.

Verbena melindres Gillies, Bot. Reg. 14: 1184. 1828. *Verbena chamaedryfolia* Juss. var. *melindres* (Gillies)

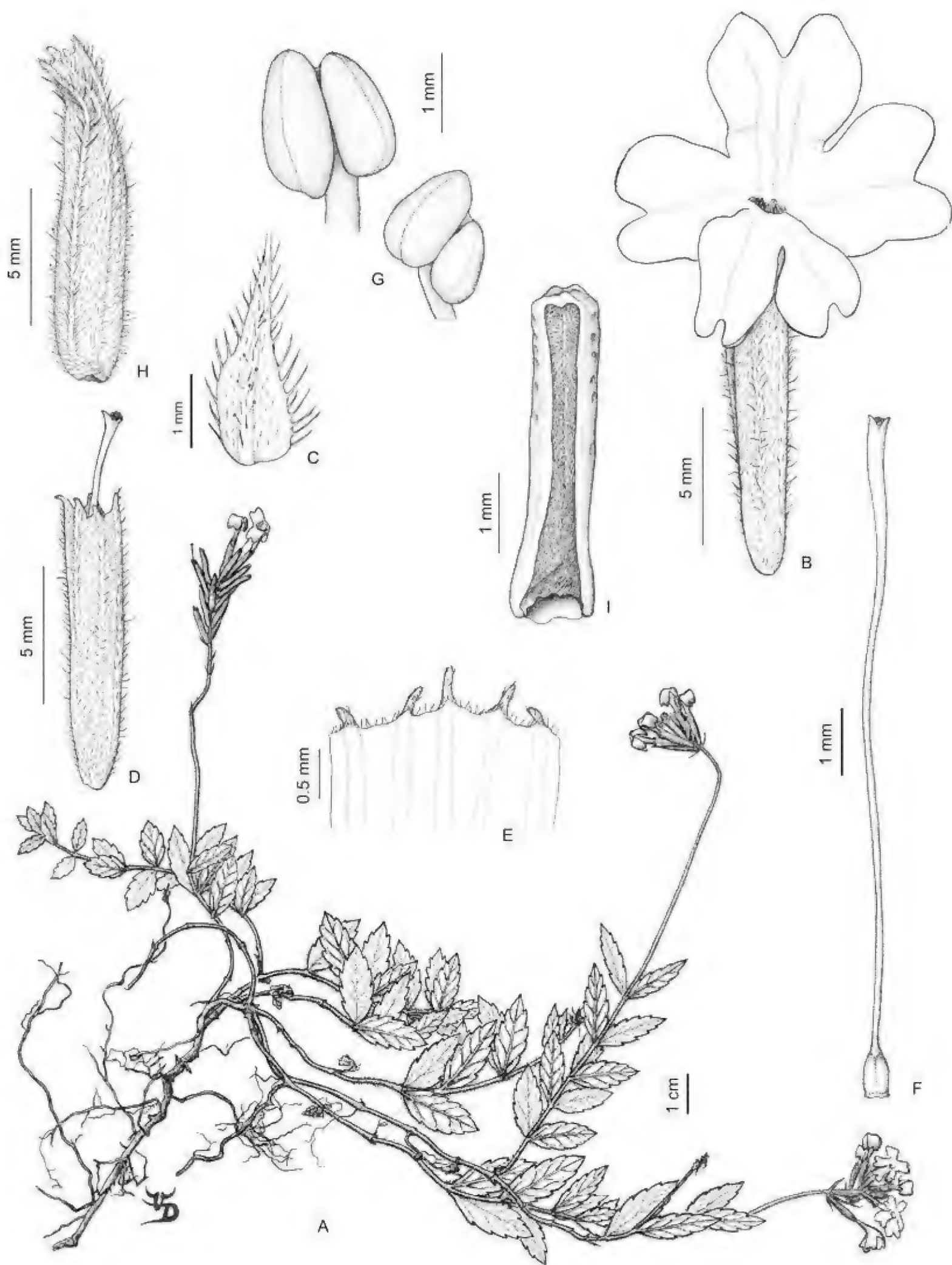


Figure 20. *Glandularia peruviana* (L.) Small. —A. Plant, general aspect. —B. Flower. —C. Floral bract. —D. Calyx. —E. Calyx extended, apical part, inner surface. —F. Gynoecia. —G. Superior pair of stamens. —H. Fructiferous calyx. —I. Cluse, ventral face. A–I from redrawn from Troncoso (1979).

Schauer, Prodr. [DC.] 11: 537. 1847. TYPE: [Argentina.] “Pampas of Buenos Ayres,” *Bot. Reg. 14: tab. 1184. 1828* (lectotype, designated by Peralta & Múlgura [2011: 387]).

Verbena melindroides Cham., *Linnaea* 7: 270. 1832.
Verbena chamaedryfolia Juss. var. *melindroides* (Cham.) Schauer, Prodr. [DC.] 11: 537. 1847. TYPE: Brazil. Santa Catarina: s. loc., s.d., *F. Sellow s.n.*

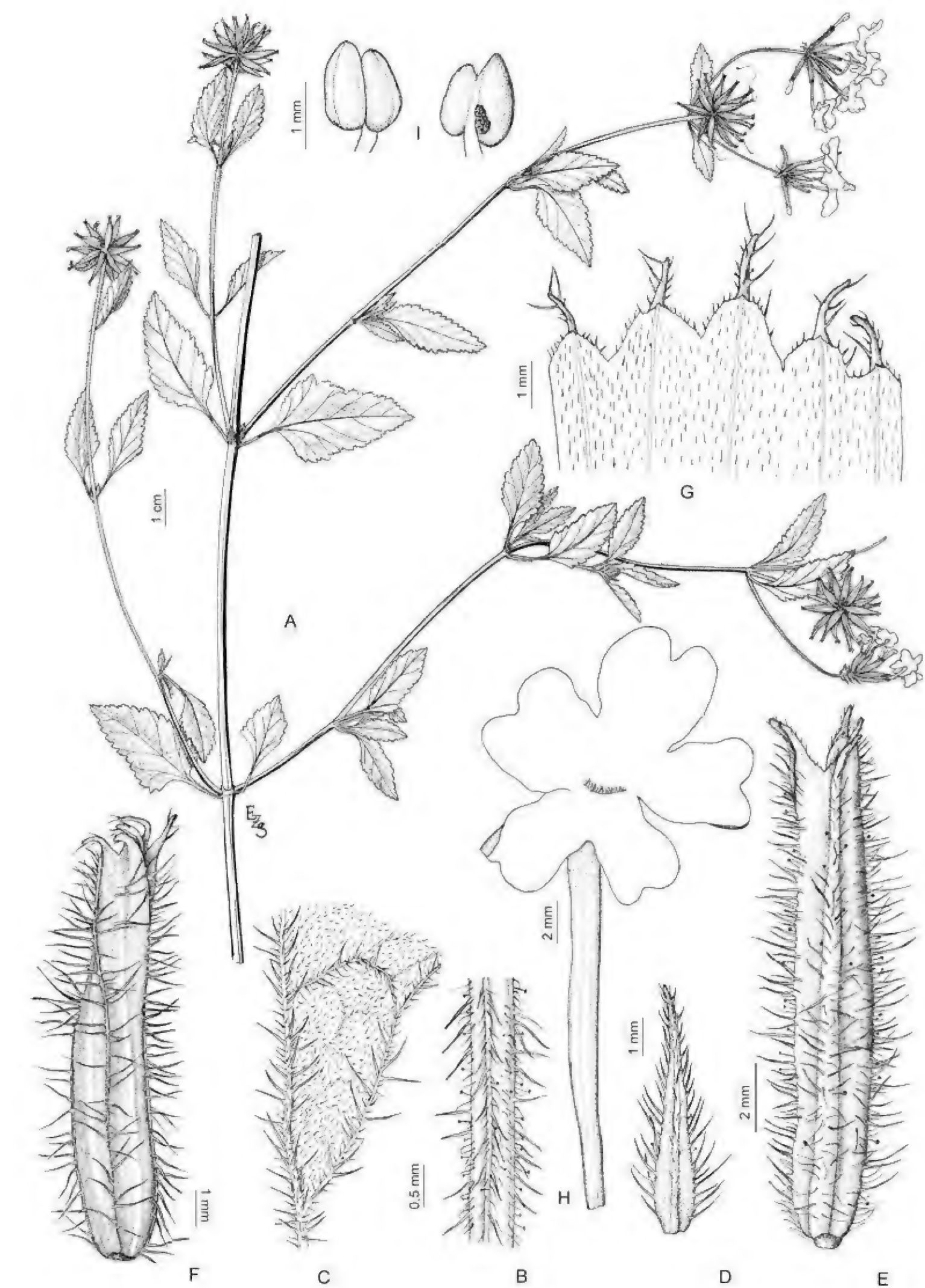


Figure 21. *Glandularia phlogiflora* (Cham.) Schnack & Covas. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Detail of leaf pubescence, abaxial surface. —D. Floral bract. —E. Calyx. —F. Fructiferous calyx. —G. Calyx extended, apical part, inner surface. —H. Corolla. —I. Superior pair of stamens. A–I from *Klein 4406* (SI).

(lectotype, designated by Peralta & Múlgura [2011: 387], K [bc] K000470559!).

Verbena sanguinea Larrañaga, *Escr. Larrañaga* 2: 9. 1923. TYPE: *Escritos D. A. Larrañaga* 2: 9, *Lámina XLII*. 1923 (lectotype, designated by Peralta & Múlgura [2011: 387], tab. XLII in Larrañaga 1923: 9).

Prostrate herb, stems decumbent with ascending floral branches, pubescence hirsute-glandular. Leaves briefly petiolate, petiole 3–8 mm, blade 5–35 × 4–15 mm, entire, ovate to elliptic, apex acute, base cuneate, margin serrate or crenate, adaxial surface strigose, abaxial surface hispid. Inflorescences arranged in monobotrya, inflorescences represented by dense multifloral spikes, enlarged in fructification, peduncle 40–70 mm. Floral bracts 3.5–4.5 mm, ovate, apex acute, pubescence hirsute-glandular. Calyx 9–11 mm, hispid-glandular, teeth triangular, 0.5 mm. Corolla 13–15 mm, externally subglabrous, bright red. Superior pair of stamens unappendaged, style 9–11 mm. Cluses 4–4.5 mm, apex round.

Common name. Camaradinha.

Distribution and ecology. *Glandularia peruviana* is widely distributed in central and northern Argentina, as well as in Bolivia, Brazil, Paraguay, and Uruguay. It grows in rocky outcrops, sand, dry soils, roadsides, grasslands, and wetlands, between sea level and 3000 m.

Notes. *Glandularia peruviana* is similar to *G. tweediana*; the most visible difference is that the first has bright red corollas and the second has lilac or pink, exceptionally white, corollas. This species is also similar to *G. nana*; see notes under the latter.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Santa Maria, faz. Santa Maria, *Moreira Filho* 353 (CTES). **Santa Catarina:** Araranguá, Morro dos Conventos, *Hatschbach* 1993 (CTES).

20. *Glandularia phlogiflora* (Cham.) Schnack & Covas, *Darwiniana* 6(3): 475. 1944. Basionym: *Verbena phlogiflora* Cham., *Linnaea* 7: 266. 1832. *Verbena phlogiflora* Cham. var. *vulgaris* Schauer, *Prodr. [DC.]* 11: 538. 1847. nom. inval. *Verbena megapotamica* Spreng. var. *phlogiflora* (Cham.) Kuntze, *Revist. Gen. Pl.* 3(3): 256. 1898. TYPE: Brazil. s. loc., s.d., *F. Sellow s.n.* (lectotype, designated by Peralta & Múlgura [2011: 390], G!; isoelectotypes, E [bc] E000373265!, K [bc] K000470726!). Figure 21.

Verbena phlogiflora f. *alba* Moldenke, *Phytologia* 4(3): 184. 1953. TYPE: Brazil. Santa Catarina: São Joaquim, in campo Cambajuva, 1200 m.s.m., 23–29 Jan. 1950, *P.*

R. Reitz 3443 (holotype, NY [bc] NY000138310!; isotypes, S [bc] 04-2446!, SI [bc] SI00003802!).

Verbena hasslerana Briq. var. *ovatifolia* Moldenke, *Phytologia* 6(6): 330. 1958. TYPE: Brazil. Santa Catarina: Rio Negrinho, Ruderal Rio Negrinho, 8 Dec. 1956, *L. B. Smith* 8478 (holotype, LL [bc] LL000375233!; isotypes, R [bc] R00196514! US [bc] US000118697!).

Suffruticose plants, 40–70 cm tall, stems erect, sometimes decumbent, pubescence hirsute-glandular, retrorse hairs. Leaves petiolate, petiole 10–20 mm, blade 20–70 × 7–25 mm, entire, ovate, apex acute, base cuneate or truncate, margin irregularly serrate toward apex, adaxial surface strigose, abaxial surface hispid. Inflorescences arranged in monobotrya or pleiobotrya, with 1 or 2 frondose lateral paracladia, surpassing terminal inflorescence, inflorescences represented by dense multifloral spikes, not enlarged in fructification, peduncles 20–50 mm. Floral bracts 5–6 mm, narrowly ovate, apex acute, pubescence hirsute-glandular. Calyx 12–16 mm, hirsute-glandular over nerves, with long hispid hairs, teeth acute, 1–2 mm. Corolla 18–20 mm, externally with glandular hairs only at apical part, violet. Superior pair of stamens with vestigial, subsessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 17–18 mm. Cluses 5–5.5 mm, apex rostrate.

Common name. Canaradinha.

Distribution and ecology. *Glandularia phlogiflora* grows in eastern Argentina, southern Brazil, and Paraguay. It is found in moist soils, swamps, forests margin, roadsides, at elevations between 200 and 1200 m.

Notes. *Glandularia phlogiflora* is similar to *G. guaranitica* and *G. megapotamica*; see notes under *G. guaranitica*.

Selected material examined. BRAZIL. **Mato Grosso do Sul:** Rio Brillhantes, faz. Bela Vista, *Hatschbach* 26081 (SI). **Minas Gerais:** Belo Horizonte, *H. L. M. Barreto* 11583 (BHCB 1846). **Paraná:** Bituruna, Rio Jangada, *Hatschbach* 14967 (SI). **Rio de Janeiro:** Parque Nacional do Itatiaia, *P. Occhioni* 9200 (MBM 73817). **Rio Grande do Sul:** Porto Alegre, Morro da Polícia, *Rambo* 37693 (SI), Lajes, Paso do Socorro, *Klein* 4406 (SI). **Santa Catarina:** Riqueza, rocky banks & stream bed, Rio Iracena, E of riqueza, *Smith* 12592 (LP). **São Paulo:** Campos do Jordão, *M. J. Robim et al.* 718 (SP).

21. *Glandularia platensis* (Spreng.) Schnack & Covas, *Darwiniana* 6(3): 475. 1944. *Verbena platensis* Spreng., *Syst. Veg.* 2: 748. 1825. TYPE: Brazil. s. loc., s.d., *F. Sellow s.n.* (neotype, designated by Peralta & Múlgura

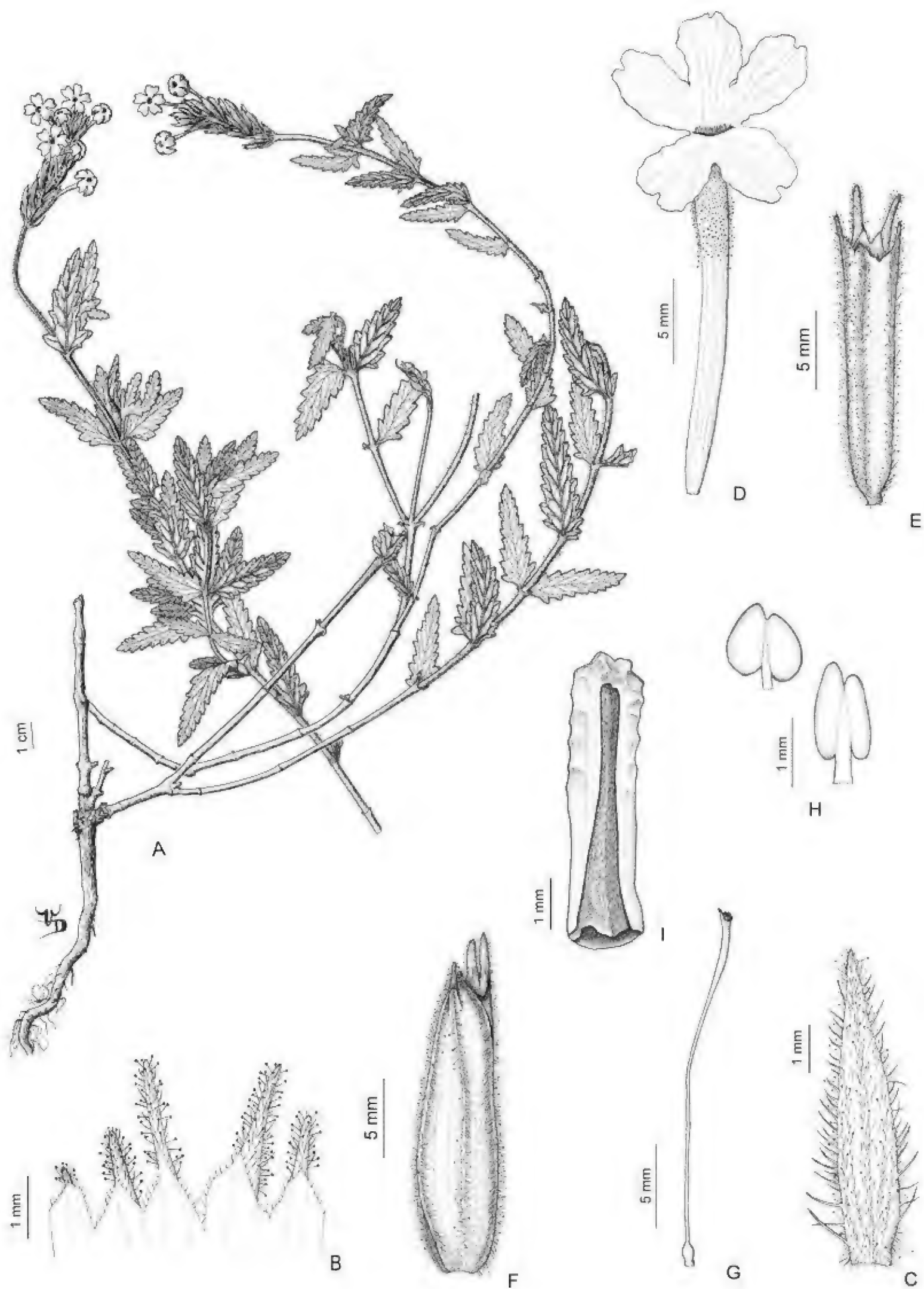


Figure 22. *Glandularia platensis* (Spreng.) Schnack & Covas. —A. Plant, general aspect. —B. Calyx extended, apical part, inner surface. —C. Floral bract. —D. Corolla. —E. Calyx. —F. Fructiferous calyx. —G. Gynoecia. —H. Superior pair of stamens. —I. Cluse, ventral face. A–I from *Burkart 23460* (SI).

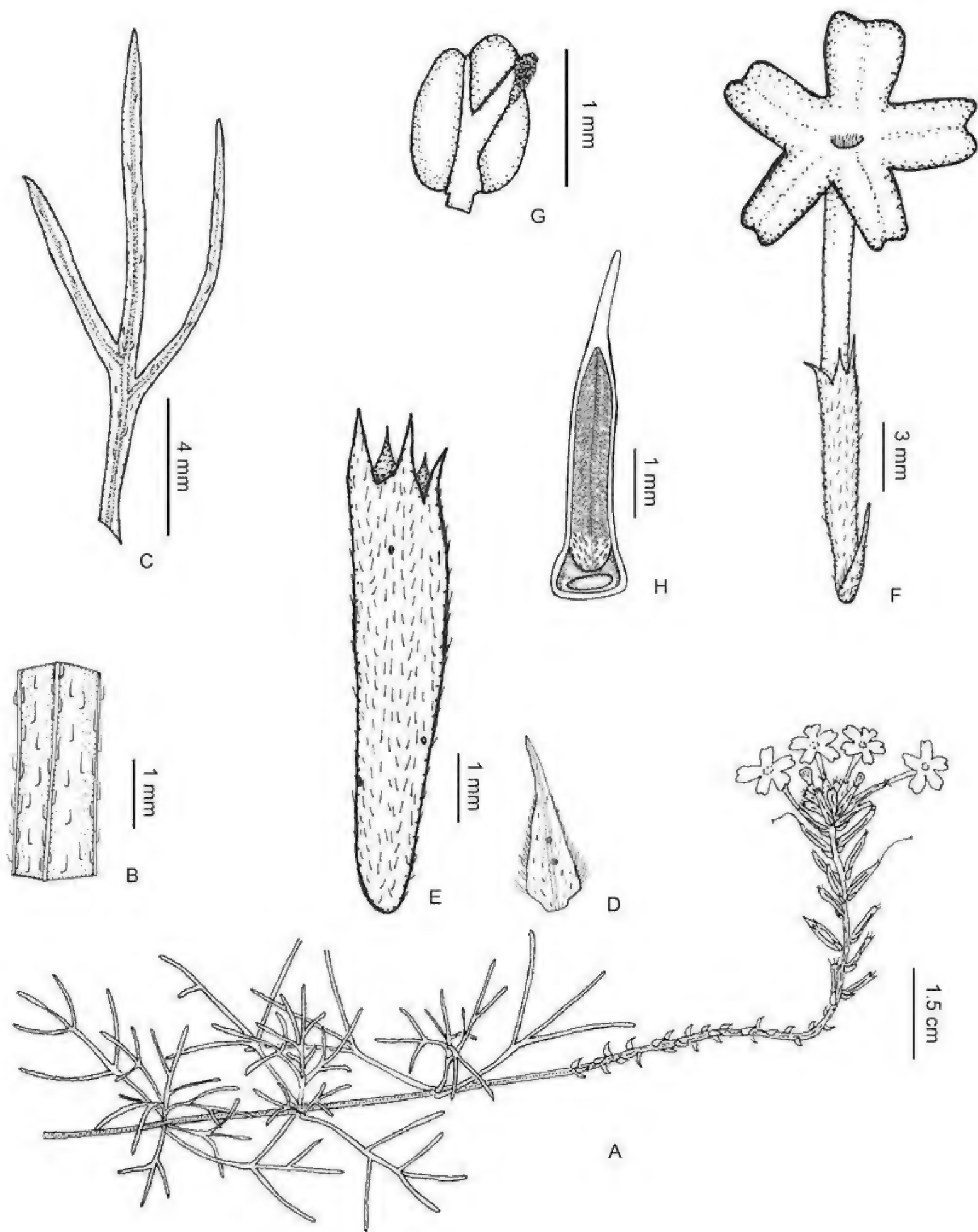


Figure 23. *Glandularia rectiloba* (Moldenke) P. Peralta & V. Thode. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Leaf, adaxial surface. —D. Floral bract. —E. Calyx. —F. Flower with floral bract. —G. Superior stamen. —H. Cluse, ventral face. A, B, H, from V. Thode 230 (ICN); C–G, from Krapovickas 22852 (TEX).

[2011: 390], P [bc] P000752585!; isoneotype, SI! fragm. ex P). Figure 22.

Verbena teucrioides Gillies & Hook., Bot. Misc. 1: 167. 1830. TYPE: Argentina. Mtns. of Mendoza, s.d., J. Gillies s.n. (lectotype, designated by Peralta & Múlgura [2011: 390], E [bc] E0000259074!).

Verbena scordioides Cham., Linnaea 7: 269. 1832. TYPE: Brazil. “*Brazilia meridionalis*,” s. loc., s.d., F. Sellow s.n. (lectotype, designated by Peralta & Múlgura [2011: 390], BR [bc] BR005503957!; isolectotypes, K [bc] K0000470552!).

Verbena chamaedryfolia Juss. f. *strigosa* Chodat, Bull. Herb. Boissier, sér. 2, 2: 818. 1902. *Verbena platensis*

Spreng. var. *stenodes* Briq., Bull. Herb. Boissier sér 2, 4: 1055. 1904. TYPE. Paraguay. Caragatatay, dic. [sine anno], *E. Hassler 5758* (lectotype, designated here, G [bc] G00077147!; isoelectotypes, G [bc] G00077145!, G [bc] G00077146!, G [bc] G00077178!, MPU [bc] MPU011496!, P [bc] P00650858!).

Verbena chamaedryfolia Juss. f. *foliosa* Chodat, Bull. Herb. Boissier, sér. 2, 2: 818. 1902. *Verbena platensis* Spreng. var. *latiuscula* Briq., nom. illeg. superfl., Bull. Herb. Boissier, sér. 2, 4: 1056. 1904. TYPE: Paraguay. Capibary, Sep., *E. Hassler 4428* (lectotype, designated by Peralta & Múlgura [2011: 391], K [bc] K00470722!).

Verbena platensis Spreng. f. *violacea* Moldenke, Phytologia 3(4): 177. 1949. TYPE: Uruguay. Soriano: Tala, Arroyo Grande, 3 Oct. 1895, *C. Osten 3195* (holotype, MVM!).

Plants suffruticose, 30–40 cm tall, stems decumbent with ascending floral branches, pubescence densely hirsute-glandular. Leaves sessile or briefly petiolate, petiole less than 10 mm, blade 20–60 × 10–20 mm, entire, narrowly ovate, apex acute, base cuneate, margin irregularly serrate, adaxial surface strigose, abaxial surface densely hispid-glandular. Inflorescences arranged in pleiobotrya, with frondose lateral paracladia, surpassing terminal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 10–70 mm. Floral bracts 4.5–7 mm, narrowly ovate, apex acute, hispid-glandular, ciliate margin. Calyx 10–17 mm, densely hirsute-glandular over the nerves, teeth aristate, 1–2 mm. Corolla 18–25 mm, externally villous with glandular hairs, white, sometimes pale pink at maturity. Superior pair of stamens unappendaged, style 21–22 mm. Cluses 4–4.5 mm, apex round.

Distribution and ecology. *Glandularia platensis* is widely distributed in northern and central Argentina and is also found in Bolivia, southern Brazil, and Uruguay. It grows in rocky fields, roadsides, sand, hills, clay soils, at elevations between 100 and 2200 m.

Notes. *Glandularia platensis* is distinguished by its hirsute-glandular pubescence, which makes it sticky, and its large white corolla (18–25 mm long) with externally glandular hairs.

There are four sheets belonging to the collection *Hassler 5758* housed in G. Following McNeill (2014) and McNeill et al. (2012), a suitable lectotype is designated among them. The chosen material has a label that reads exactly the same as in the protologue.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Alegrete, Rio Ibirapuitá, *Arbo 2429* (CTES).

22. *Glandularia rectiloba* (Moldenke) P. Peralta & V. Thode, *Rodriguésia* 61(suppl.): 32. 2010. Basionym: *Verbena rectiloba* Moldenke, *Phytologia* 26: 409. 1973. TYPE: Brazil. Rio Grande do Sul: Rosário do Sul, on sandy banks of Rio Santa Maria, in Mun. Rosário do Sul, 20 Jan. 1973, *A. Krapovickas, C. Cristóbal & C. Quarín 22825* (holotype, TEX [bc] TEX0375268!; isotypes, CTES [bc] CTES0001675!, SI [bc] SI0003797!). Figure 23.

Prostrate herb, stems decumbent with ascending floral branches, pubescence glabrous to pilose. Leaves petiolate, petiole 11–15 mm, blade 30–55 × 20–40 mm, 3-sected, rarely bipinnatisect, segments linear, both surfaces scarcely strigose. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence or not, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 15–20 mm. Floral bracts 2.5–4 mm, ovate, apex acute, pubescence strigose, ciliate margin. Calyx 9–11 mm, strigose with some patelliform glands, nerves not evident, teeth triangular, 0.5–1 mm. Corolla 14–18 mm, externally glabrous, violet. Superior pair of stamens with glandular appendages, surpassing thecae and corolla mouth, style 13–15 mm. Cluses 6–7 mm, apex rostrate.

Distribution and ecology. Only two collections of *Glandularia rectiloba* are known, both from the locality of Rosário do Sul, in Rio Grande do Sul, Brazil, found in the sandy banks of the Santa Maria River.

Notes. *Glandularia rectiloba* is similar to *G. tenera* in habit and in having sected leaves with linear segments. In *G. rectiloba*, the leaves are markedly 3-sected with bigger blades (30–55 × 20–40 mm vs. 15–20 × 15 mm) and longer petioles (11–15 mm vs. less than 10 mm). The corolla is bigger (14–18 mm vs. 8–9 mm), and the calyx does not have evident nerves as it does in most *Glandularia* species.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Rosário do Sul, *V. Thode 230* (ICN).

23. *Glandularia scrobiculata* (Griseb.) Tronc., *Darwiniana* 19(3–4): 738. 1975. Basionym: *Verbena scrobiculata* Griseb., *Abh. Königl. Ges. Wiss. Göttingen* 24: 275. 1879. TYPE: Argentina. Jujuy: San Lorenzo, Oct. 1873, *P. G. Lorentz & G. Hieronymus 244* (holotype, GOET 00187!; isotype, CORD 6135!). Figure 24.

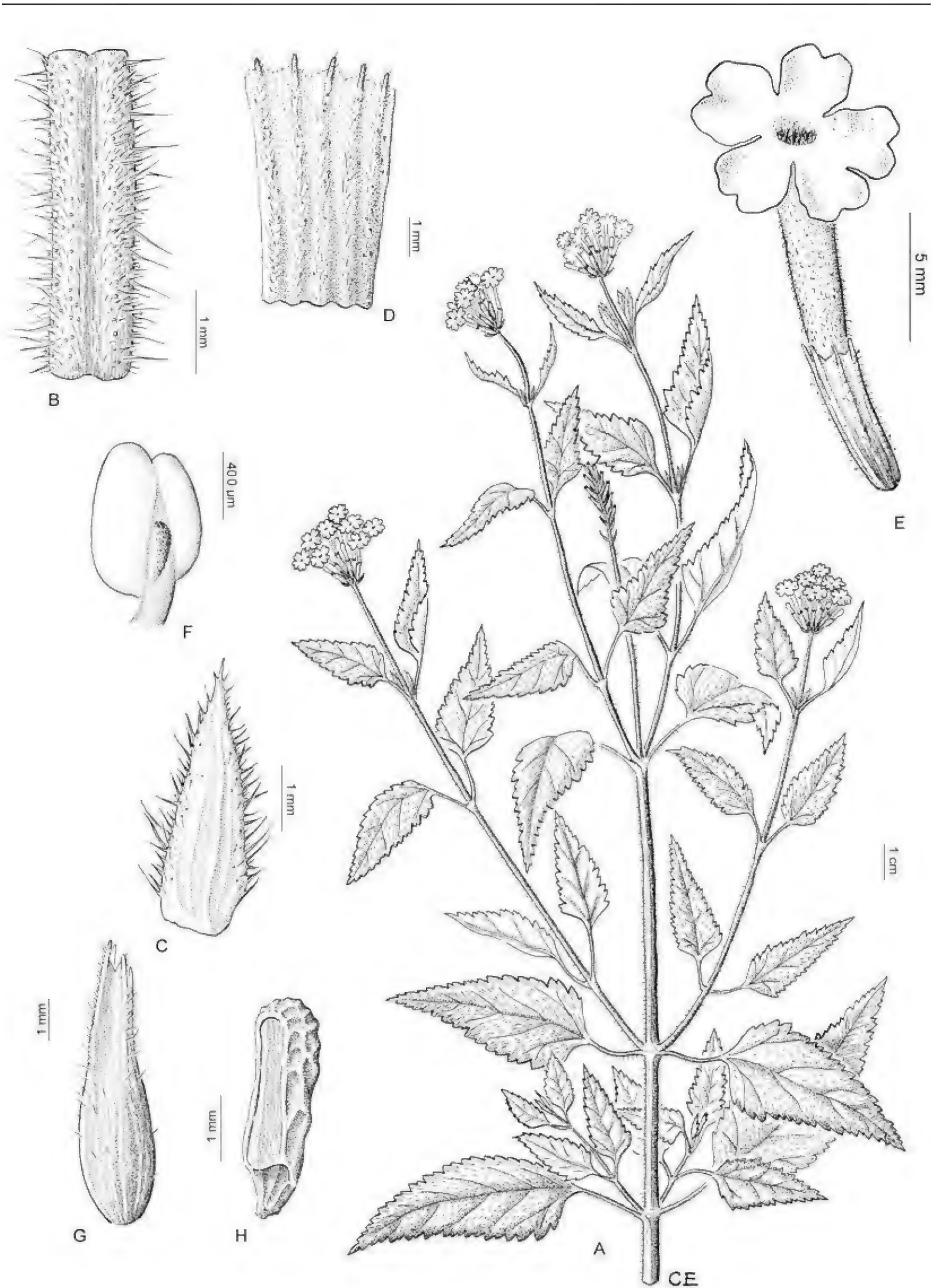


Figure 24. *Glandularia scrobiculata* (Griseb.) Tronc. —A. Branch, general aspect. —B. Detail of stem pubescence. —C. Floral bract. —D. Calyx extended, outer surface. —E. Flower. —F. Superior stamen. —G. Fructiferous calyx. —H. Cluse, ventral face. A–H from *Cabrera 28044* (SI).

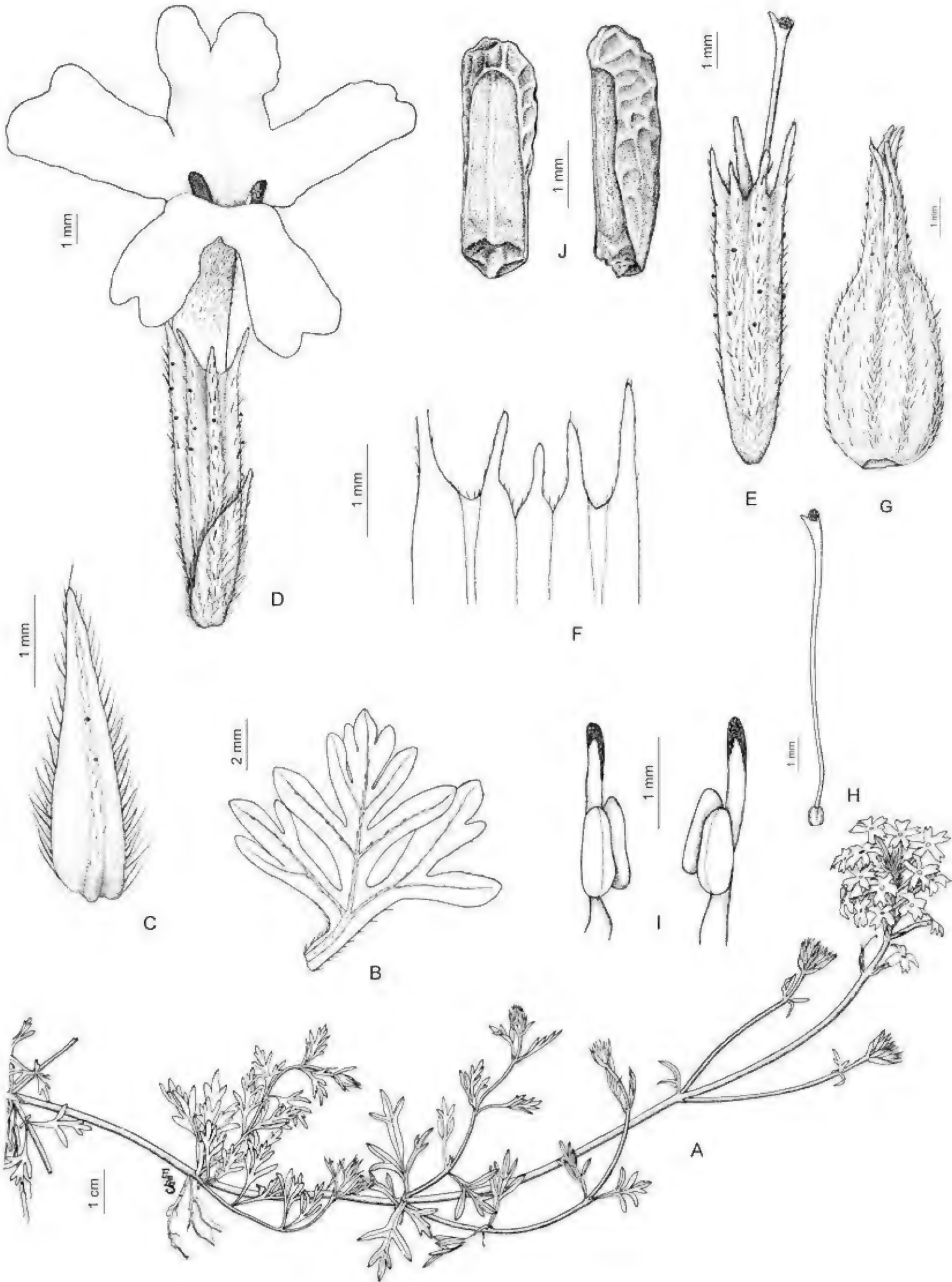


Figure 25. *Glandularia selloi* (Spreng.) Tronc. —A. Branch, general aspect. —B. Leaf, adaxial surface. —C. Floral bract. —D. Flower with floral bract. —E. Calyx. —F. Calyx extended, apical part, inner surface. —G. Fructiferous calyx. —H. Gynoecia. —I. Superior pair of stamens. —J. Cluses, ventral and lateral face. A–J from *Rosengurtt 2116* (SI).

Verbena hunzikeri Moldenke, Phytologia 2(8): 321. 1947. TYPE: Argentina. Tucumán: entre Alto del Clavillo y Alpachiri, 1800 m.s.m., 20 Sep. 1946, A. T. Hunziker 6812 (holotype, NY [bc] NY0138275!; isotypes, CORD [bc] CORD003847!, LIL [bc] LIL000184844!, SI [bc] SI00076259!).

Verbena moricolor Moldenke, Phytologia 2(10): 424. 1948. *Glandularia moricolor* (Moldenke) Tronc., nom. illeg. Darwiniana 18: 319. 1974. TYPE: Argentina: Jujuy, Ledesma, Sierra de Calilegua, 800 m.s.m., 11 Oct. 1927, S. Venturi 5397 (holotype, CAS [bc] CAS004922!; isotypes, BM [bc] BM000798318!, LIL [bc] LIL001438!, NY [bc] NY00138295!, S [bc] S04-2444!, SI [bc] SI003784!, US [bc] US00118716!).

Plants suffruticose, 50–100 cm tall, stems erect, 4-angled, pubescence hispid with glandular hairs. Leaves petiolate, petiole 15–25 mm, blade 40–65 × 15–40 mm, entire, sometimes trilobed toward base, ovate to triangular, apex acute, base truncate, margin irregularly serrate, adaxial surface strigose, abaxial surface hispid. Inflorescences arranged in pleiobotrya with frondose paracladia, surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 30–45 mm. Floral bracts 3.5–6 mm, ovate, apex acute, subglabrous, with some glandular hairs, ciliate margin. Calyx 6.5–8 mm, hispid-glandular, teeth triangular, 0.5–1 mm. Corolla 11–12 mm, externally villous, violet or lilac. Superior pair of stamens with vestigial sessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 10–11 mm. Cluses 2.8–3 mm, apex round.

Distribution and ecology. *Glandularia scrobiculata* is known from southern Bolivia, northern Argentina, and southern Brazil. It grows in forest margins and roadsides, at elevations between 250 and 2000 m.

Notes. *Glandularia scrobiculata* is similar to *G. hasslerana* and *G. nana*. See differences in notes under each species. In dried herbarium material, *G. scrobiculata* usually presents with the adaxial surface darker than the abaxial surface.

Selected material examined. BRAZIL. Rio Grande do Sul: Nova Roma do Sul, Nov. 2004, Larocca s.n. (PACA 97350).

24. *Glandularia selloi* (Spreng.) Tronc., Darwiniana 13(2–4): 481. 1964. Basionym: *Verbena selloi* Spreng., Syst. Veg. (ed. 16) [Sprengel] 2: 750. 1825. *Shuttleworthia selloi* (Spreng.) Walp., Repert. Bot. Syst. [Walpers] 4: 13. 1845. TYPE: Brazil. s. loc., s.d., F. Sellow s.n. [ex Herb. Imperial du Brésil 549] (lectotype, designated

by Peralta & Múlgura [2011: 393], P [bc] P00650862!). Figure 25.

Prostrate herbs, stems decumbent with ascending floral branches, pubescence glabrous to hispid, retrorse hairs. Leaves briefly petiolate, petiole 3.5–5 mm, blade 7–20 × 5–15 mm, 3-sected to bipinnatifid, ovate, segments ovate, obovate, apex acute, base attenuate, margin irregularly lobate, adaxial surface lightly strigose, abaxial surface hispid over nerves. Inflorescences arranged in monobotrya or frondose pleiobotrya, lateral paracladia surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 5–15 mm. Floral bracts 4–5 mm, narrowly ovate, apex acute, glabrous with hispid hairs over central nerve, ciliate margin. Calyx 7–8 mm, hispid, with some patelliform glands, teeth acute, 1–2 mm. Corolla 15 mm, externally villous, lilac or pink. Superior pair of stamens with glandular appendages, surpassing thecae, surpassing corolla mouth, style 8–10 mm. Cluses 3–3.5 mm, apex round.

Distribution and ecology. *Glandularia selloi* is widely distributed in Uruguay and southern Brazil. In Argentina it is present only in the province of Entre Ríos. It grows on beaches, sand dunes, roadsides, swamps, and disturbed areas.

Notes. *Glandularia selloi* is similar to *G. subincana*. The latter is distinguished by its externally glabrous corollas; the corollas in *G. selloi* are villous. It is also similar to *G. catharinae* and *G. tenera*; see notes under these taxa.

Selected material examined. BRAZIL. Rio Grande do Sul: Coxilho Pedras Altas, Pedersen 11445 (CTES, SI).

25. *Glandularia sessilis* (Cham.) Tronc., Fl. Il. Entre Rios, Colecc. Ci. Inst. Nac. Tecnol. Agropecu. 6(5): 247. 1979. Basionym: *Verbena stellarioides* Cham. var. *sessilis* Cham., Linnaea 7: 265. 1832. *Verbena sessilis* (Cham.) Kuntze, Revis. Gen. Pl. 3(3): 257. 1898. TYPE: Brazil. s. loc., s.d., F. Sellow 1563 (lectotype, designated by Peralta & Múlgura [2011: 394], G). Figure 26.

Verbena kuhlmannii Moldenke, Phytologia 31(1): 29. 1975. TYPE: Brazil. São Paulo: Lake Moji-Guaçu, Reserva Florestal (faz. Campininha), 27 Oct. 1955, M. Kuhlmann 3717 (holotype, US [bc] US00118708!; isotype, SI [bc] SI0030060!).

Verbena tristachya Tronc. & Burkart, Darwiniana 7: 208. 1946. *Glandularia tristachya* (Tronc. & Burkart) Schnack & Covas, syn. nov. Bol. Soc. Argent. Bot. 1: 284. 1946. TYPE: Argentina. Entre Ríos: Dpto. Ibicuy, Delta superior, Isla de las Lechiguas, 30

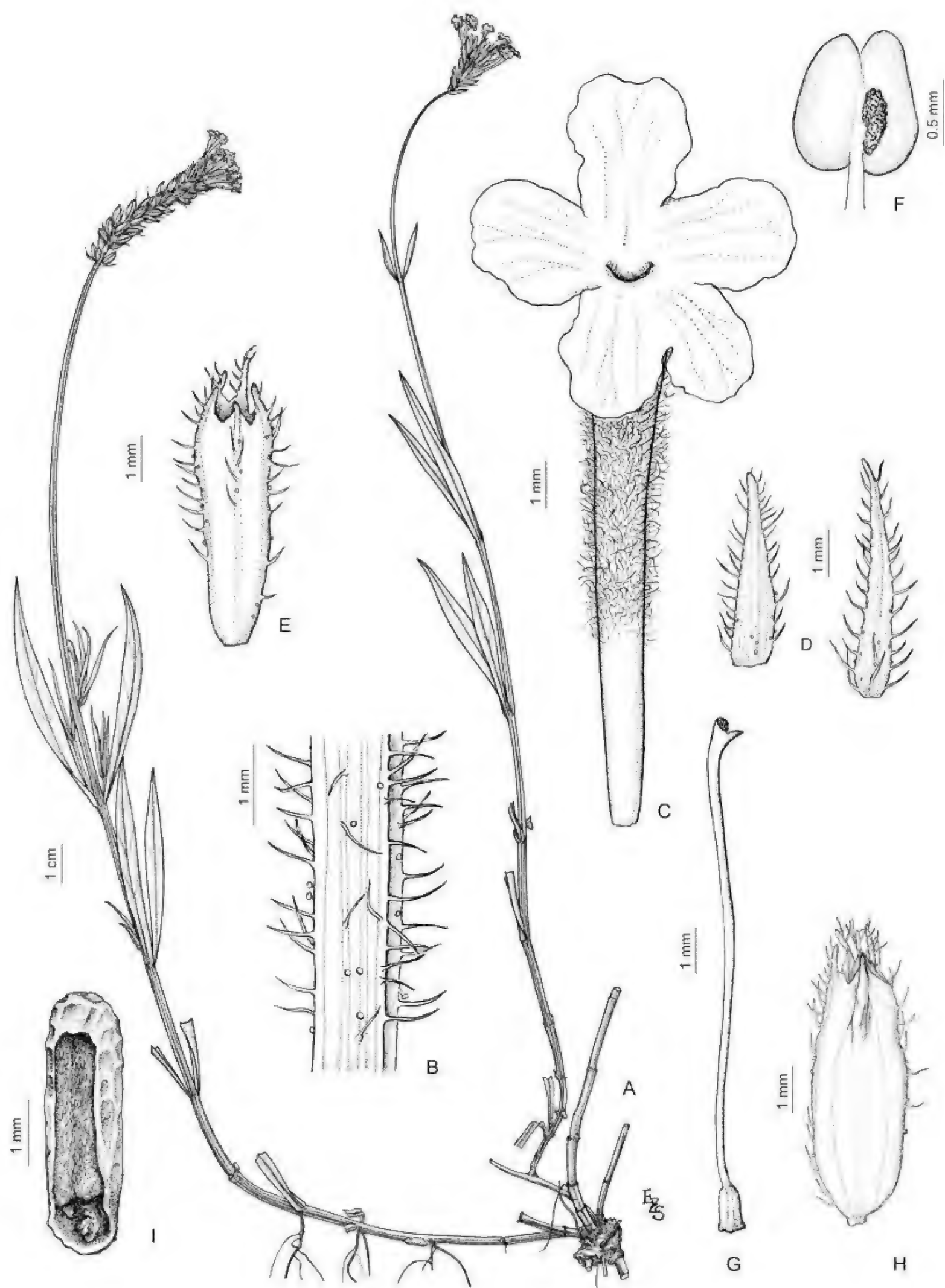


Figure 26. *Glandularia sessilis* (Cham.) Tronc. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Corolla. —D. Floral bracts. —E. Calyx. —F. Superior stamen. —G. Gynoecia. —H. Fructiferous calyx. —I. Cluse, ventral face. A–I from Pedersen 7171 (SI).

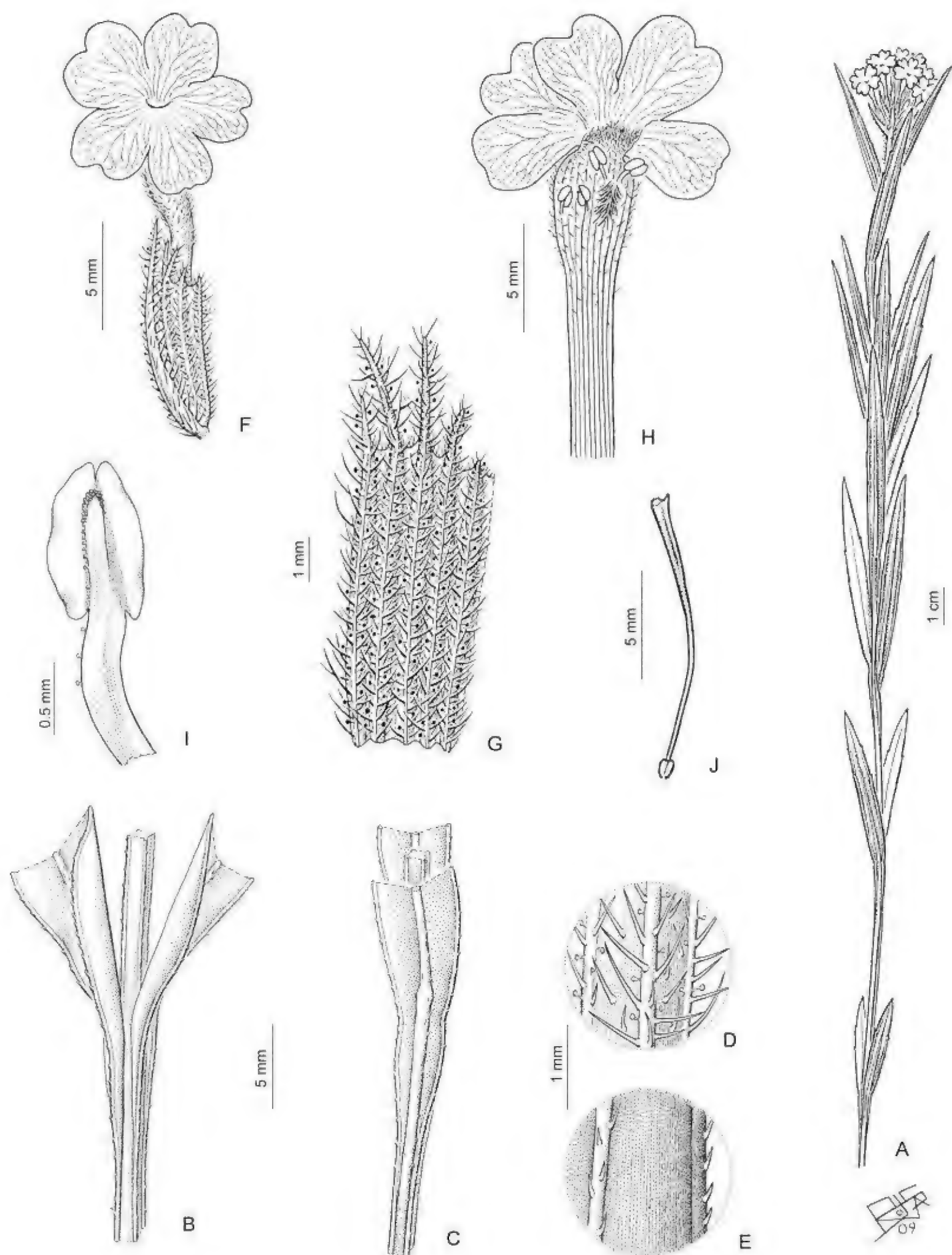


Figure 27. *Glandularia stellarioides* (Cham.) Schnack & Covas. —A. Plant, general aspect. —B, C. Detail of leaf base. —D. Detail of leaf pubescence, abaxial surface. —E. Detail of leaf pubescence, abaxial surface. —F. Flower with floral bract. —G. Calyx extended, outer surface. —H. Corolla opened with androecia. —I. Superior stamen. —J. Gynoecia. A–J from *Montes 15449* (SI).

Dec. 1945, *A. Burkart 15644* (holotype, SI [bc] SI003798!; isotypes, K [bc] K00470705!, K [bc] K00470704!, NY [bc] NY00138343!, SI [bc] SI003800!, US [bc] US00118741!).

Verbena morongii Britton, Ann. New York Acad. Sci. 7: 192. 1892. TYPE: Paraguay. Central: Caballero, 21 Jan. 1889, *T. Morong 600* (holotype, NY [bc] NY00138296!; isotypes, PH [bc] PH0028760!, US [bc] US00118717!).

Plants suffruticose plants, 40–80 cm tall, stems erect or decumbent with ascending floral branches, pubescence glabrous or slightly strigose, with patelliform glands. Leaves sessile, blade 40–100 × 5–10 mm, entire, linear to narrowly elliptic, apex acute, base cuneate, margin entire or slightly serrate, both surfaces glabrous or slightly strigose. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 20–40 mm. Floral bracts 5–7 mm, narrowly ovate, apex acute, subglabrous, long ciliate margin. Calyx 5–8 mm, glabrous, hispid over nerves, teeth acute, 1–1.5 mm. Corolla 12–13 mm, externally villous, violet or blue. Superior pair of stamens with sessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 11 mm. Cluses 3 mm, apex round.

Distribution and ecology. *Glandularia sessilis* is found in northeastern Argentina, Paraguay, southern Brazil (*Verbena kuhlmannii* type material from São Paulo), and Uruguay. It grows in grasslands, flooded areas, and swamps.

Notes. *Glandularia sessilis* is similar to *G. stellarioides*. The latter is distinguished by its decurrent leaf base and the presence of longer floral bracts (10–14 mm long vs. 5–7 mm long).

Peralta (2009) differentiates *Glandularia sessilis* from *G. tristachya* by the presence of sessile glandular appendages in the stamens and longer floral bracts in the former. However, the analysis of type material and additional specimens has led to the conclusion that these are the same species.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Bagé, *Thode 111* (ICN).

26. *Glandularia stellarioides* (Cham.) Schnack & Covas, Bol. Soc. Argent. Bot. 1: 284. 1946. Basionym: *Verbena stellarioides* Cham., Linnaea 7: 264. 1832. TYPE: Brazil. s. loc., s.d., *F. Sellow s.n.* (lectotype, designated by Peralta & Múlgura [2011: 395], HAL [bc] HAL00098274!). Figure 27.

Plants suffruticose, 40–70 cm tall, stems erect or decumbent with ascending floral branches, pubescence glabrous or slightly strigose over the ribs. Leaves sessile, blade 25–100 × 5–6 mm, entire, linear to narrowly elliptic, apex acute, base decurrent, margin entire or slightly serrate, both surfaces glabrous or slightly strigose. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 10–30 mm. Floral bracts 10–14 mm, narrowly ovate, apex acute, strigose, ciliate margin. Calyx 8.5–10 mm, densely hispid with glandular hairs, teeth acute or aristate, 2 mm. Corolla 15 mm, externally villous, lilac or pink. Superior pair of stamens with vestigial sessile glandular appendages, not surpassing thecae, not surpassing corolla mouth, style 12 mm. Cluses 3–3.5 mm, apex round.

Distribution and ecology. *Glandularia stellarioides* is distributed in northeastern Argentina and Rio Grande do Sul, Brazil. It inhabits grasslands and flooded fields at sea level.

Notes. *Glandularia stellarioides* is similar to *G. sessilis*; see differences under the latter species.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Tupanciretan, Chacara, *Rambo 9950* (LIL).

27. *Glandularia subincana* Tronc., Darwiniana 13(2–4): 478. 1964. TYPE: Uruguay. Salto: Río Arapey, Arroyo Valentín, 28 Jan. 1937, *B. Rosengurtt B-992* (holotype, SI [bc] SI003810!, isotypes, MVFA [bc] MVFA0000756!, NY [bc] NY00137546!). Figure 28.

Plants suffruticose, 8–40 cm tall, stems decumbent with ascending floral branches, pubescence hispid, more dense toward apex, retrorse hairs. Leaves sessile, or briefly petiolate, petiole less than 5 mm, blade 10–30 × 10–25 mm, 3-dissected, segments narrowly ovate, lobate, apex acute-obtuse, base attenuate, adaxial surface hirsute with glandular hairs, abaxial surface densely hirsute over nerves. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fructification, peduncles 20–50 mm. Floral bracts 4–5 mm, narrowly ovate, apex acute, hirsute with patelliform glands, ciliate margin. Calyx 8–8.5 mm, slightly strigose with patelliform glands, teeth triangular, 1 mm. Corolla 12–15 mm, externally glabrous, violet, lilac, or blue. Superior pair of stamens with sessile glandular

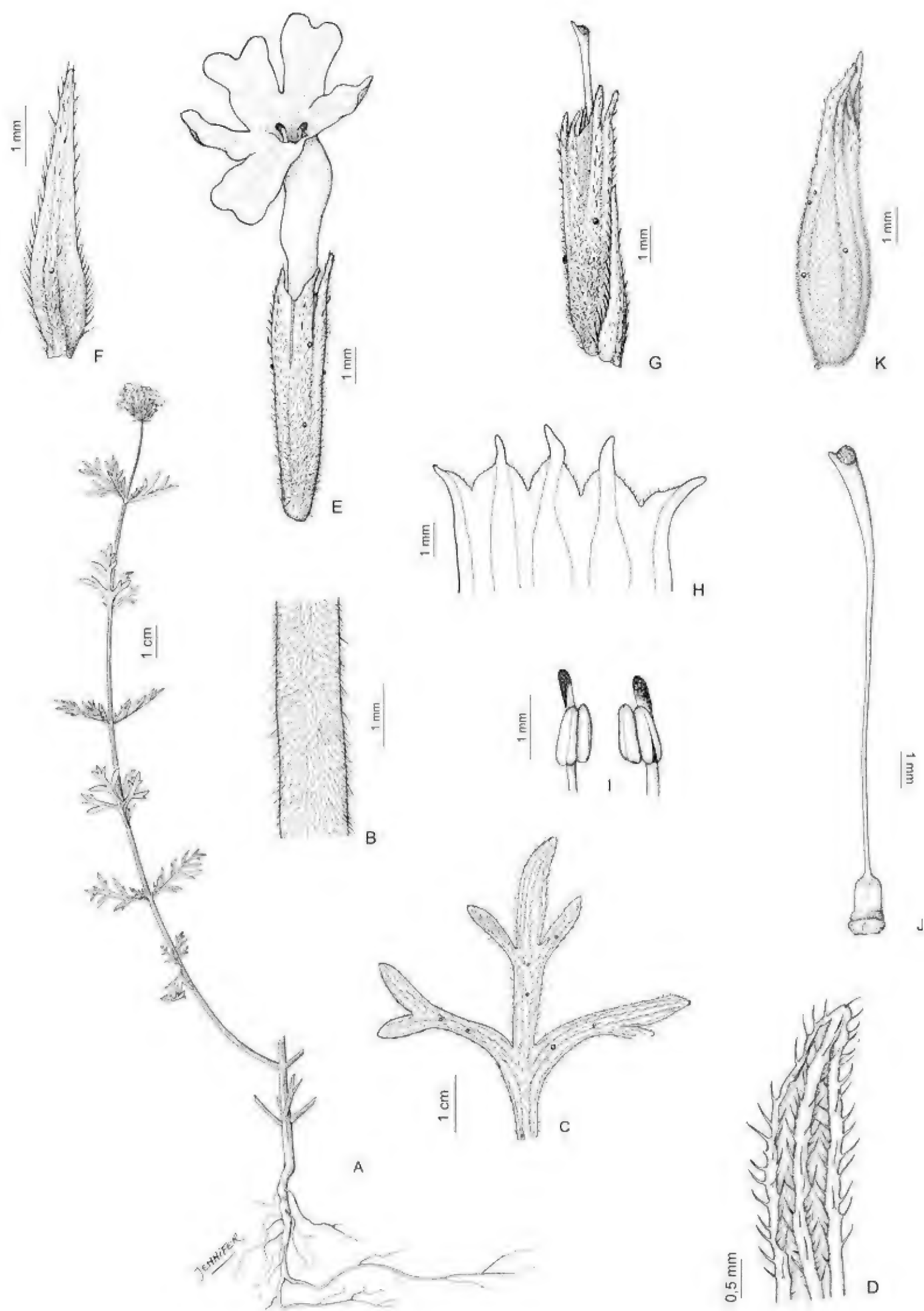


Figure 28. *Glandularia subincana* Tronc. —A. Plant, general aspect. —B. Detail of stem pubescence. —C. Leaf, abaxial surface. —D. Detail of leaf abaxial pubescence, surface. —E. Flower. —F. Floral bract. —G. Calyx with floral bract. —H. Calyx extended, apical part, inner surface. —I. Superior pair of stamens. —J. Gynoecia. —K. Fructiferous calyx. A–K from Morrone 5806 (SI).

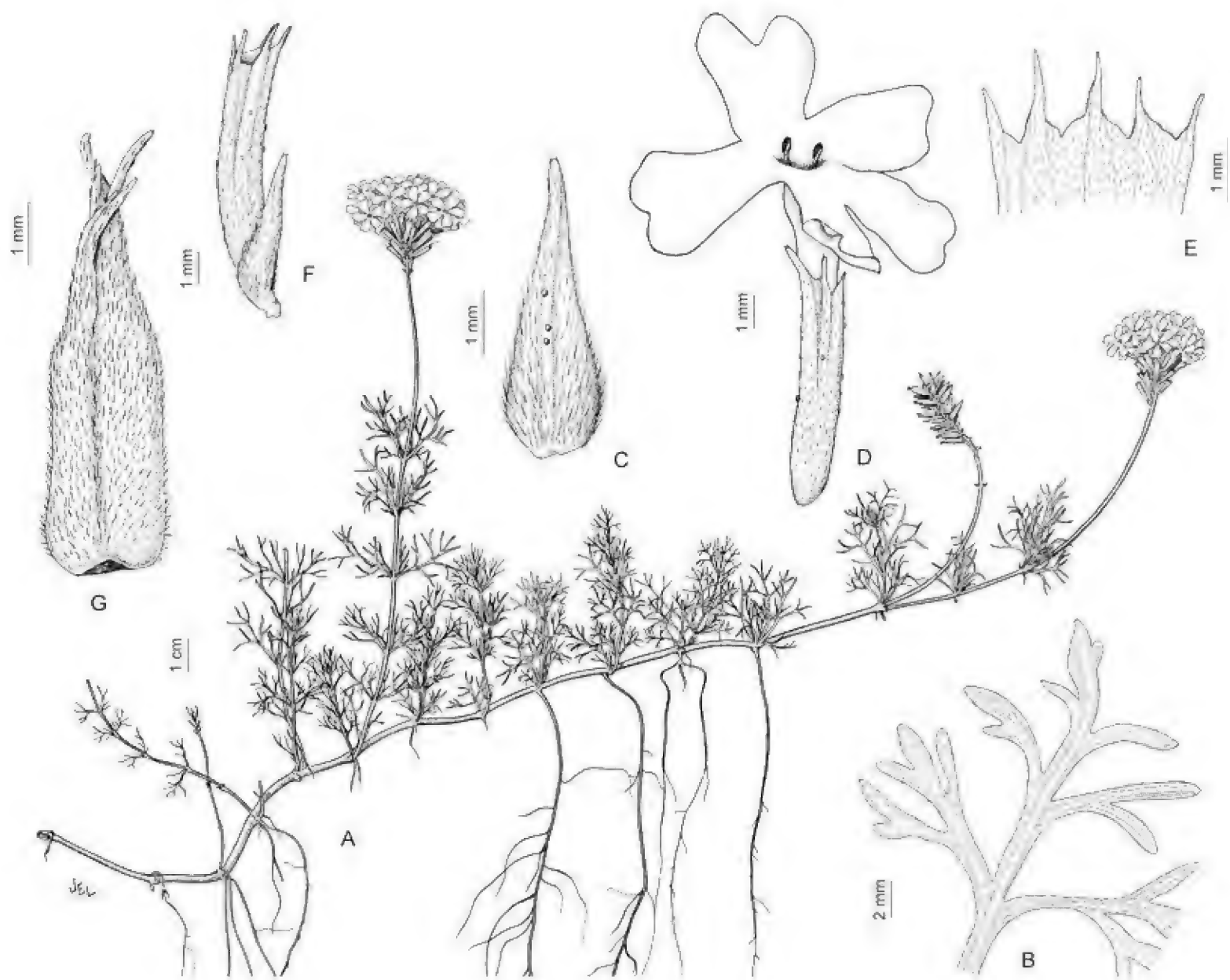


Figure 29. *Glandularia tenera* (Spreng.) Cabrera. —A. Plant, general aspect. —B. Leaf, abaxial surface. —C. Floral bract. —D. Flower. —E. Calyx extended, apical part, outer surface. —F. Calyx with floral bract. —G. Fructiferous calyx. A–G from Ragonese 49 (SI).

appendages, surpassing thecae and corolla mouth, style 8–9 mm. Cluses 2.5–3 mm, apex round.

Distribution and ecology. It grows in northern and central Argentina, southern Brazil, and Uruguay. It can be found in slopes and sandy soils, at elevations from sea level to 350 m.

Notes. *Glandularia subincana* is similar to *G. tomophylla*; it is distinguished by the corolla pubescence, which is glabrous in the former and externally villous in the latter. It is also similar to *G. selloi* and *G. tenera*; see differences under these species.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Santana do Livramento, *Schneider 1612* (ICN).

28. *Glandularia tenera* (Spreng.) Cabrera, Man. Fl. Alrededores Buenos Aires: 398. 1953. Basionym: *Verbena tenera* Spreng., Syst. Veg. (ed. 16) [Sprengel] 2: 750. 1825. TYPE: Uruguay. Montevideo, s.d., *F. Sellow* s.n. (lectotype,

designated by Peralta & Múlgura [2011: 397], K [bc] K00470522!; isoelectotypes, E [bc] E000373267!, K [bc] K00470523!). Figure 29.

Verbena pulchella Sweet, Brit. Fl. Gard. [Sweet], ser. 1, 3: tab. 295. 1827. *Shuttleworthia pulchella* (Sweet) Meisn., Pl. Vasc. Gen. [Meisner], 2: 198. 1840. *Glandularia pulchella* (Sweet) Tronc., Darwiniana 13(2–4): 473. 1964. TYPE: tab. 295, in Sweet, 1827. Brit. Fl. Gard. ser. 1, 3.

Verbena tenera Spreng. var. *albiflora* Kuntze, Revis. Gen. Pl. 3(2): 258. 1898. *Verbena tenera* f. *albiflora* (Kuntze) Moldenke, Phytologia 41: 451. 1979. TYPE: Argentina. Santa Fe: Ceres, Oct. 1892, *C. E. O. Kuntze* s.n. (holotype, NY [bc] NY000138335!; isotypes, F [bc] F0074535!, LP!).

Glandularia pulchella (Sweet) Tronc. var. *clavellata* Tronc., Darwiniana 13(2–4): 476. fig. 3. 1964. *Verbena pulchella* Sweet var. *clavellata* (Tronc.) Shinnars, Sida 2(3): 266. 1966. TYPE: Argentina. Buenos Aires: Sierra de la Ventana, Parque Provincial, 6 Oct. 1939, *A. L. Cabrera 5288* (holotype, SI!).

Glandularia pulchella (Sweet) Tronc. var. *gracilior* Tronc., Darwiniana 13(2–4): 476. 1964. *Verbena pulchella* Sweet var. *gracilior* (Tronc.) Shinnars, Sida 2(3): 266. 1966. TYPE: Argentina. Buenos Aires: Pdo. General Madariaga [Pdo. Villa Gesell], Villa Gesell, 5 Mar.

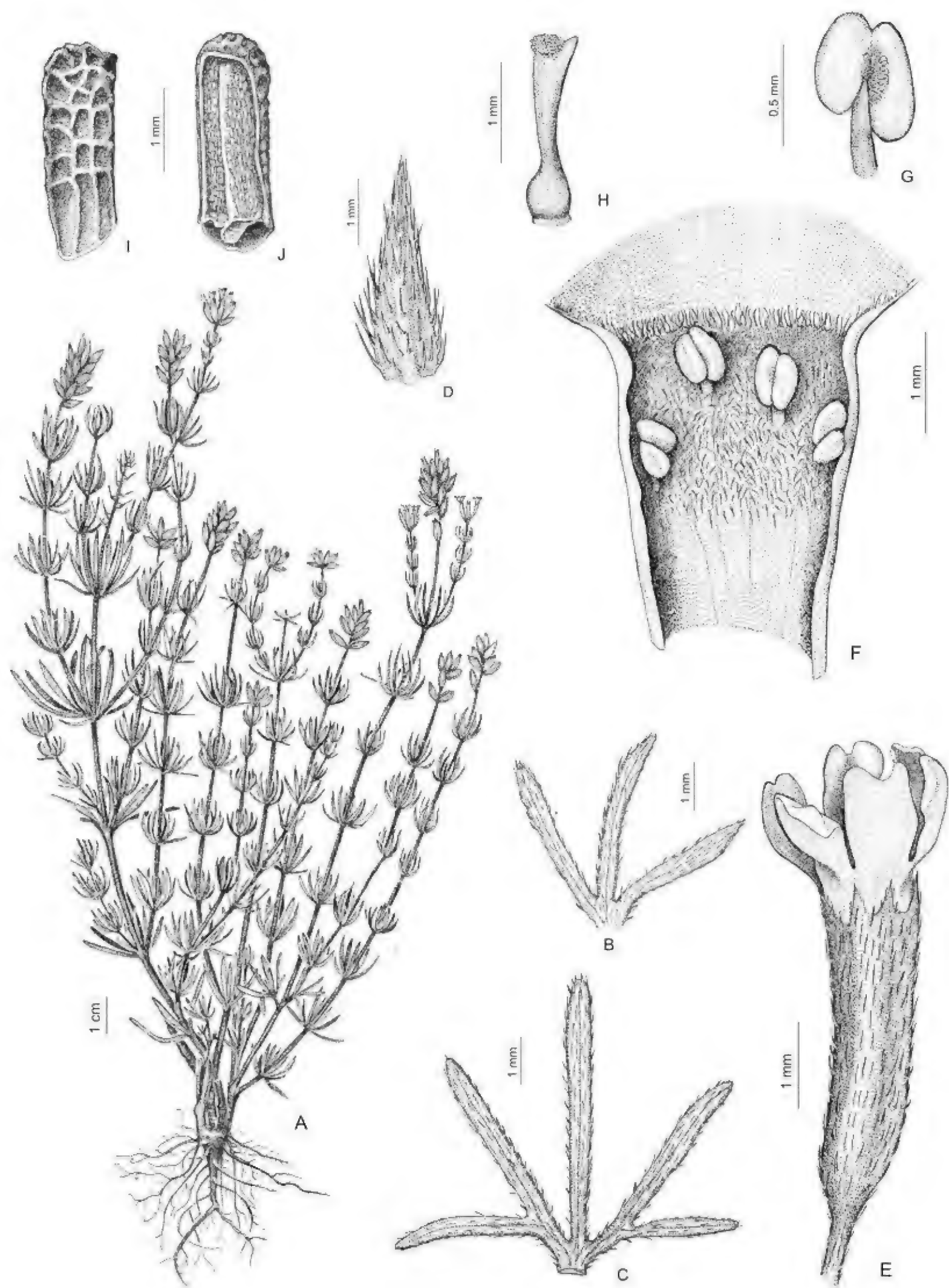


Figure 30. *Glandularia thymoides* (Cham.) N. O’Leary. —A. Plant, general aspect. —B, C. Leaves, adaxial surface. —D. Floral bract. —E. Flower. —F. Corolla opened with androecia. —G. Superior stamen. —H. Gynoecia. —I. Cluse, dorsal face. —J. Cluse, ventral face. A–J from Troncoso and Bacigalupo (1982).

1961, *A. Burkart* 22380 (holotype, SI-76238!; isotype, US [bc] US00118729!).

Verbena santiaguensis (Covas & Schnack) Moldenke f. *albiflora* Moldenke, *Phytologia* 18: 295. 1969. TYPE: Argentina. Buenos Aires: Pdo. General Pueyrredón, [Mar del Plata] Playa Grande, 10 Dec. 1944, *J. M. Villegas Vaquero* 666 (holotype, NY [bc] NY000138321!).

Prostrate herb, stems decumbent with ascending floral branches, pubescence strigose. Leaves briefly petiolate, petiole less than 10 mm, blade 15–20 × 15 mm, 3- to 5-dissected to bipinnatisect, segments linear to narrowly ovate, both surfaces strigose with patelliform glands on abaxial surface. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 15–20 mm. Floral bracts 3.5–4.5 mm, ovate, apex acute, pubescence strigose, with patelliform glands. Calyx 8–9 mm, strigose with some patelliform glands, teeth acute, 1 mm. Corolla 12–13 mm, externally glabrous, violet. Superior pair of stamens with glandular appendages, surpassing thecae and corolla mouth, style 11 mm. Cluses 4–6 mm, apex rostrate.

Distribution and ecology. *Glandularia tenera* is found in northern and central Argentina, Paraguay, Uruguay, and southern Brazil, in the states of Rio Grande do Sul, Santa Catarina, and São Paulo. It grows in sandy fields, roadsides, margins of streams and rivers, and rocky areas, at elevations between sea level and 560 m.

Notes. *Glandularia tenera* is similar to *G. selloi* and *G. subincana*. It is distinguished by its rostrate apex cluse, which is round in the latter two species. It can also be confused with *G. aristigera* and *G. rectiloba*; see differences under these species.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Ibirubá, *Thode* 67 (ICN). **Santa Catarina:** Araranguá, *Reitz c1280e* (SI). **São Paulo:** Piracicaba, Sep. 2005, *Andrade s.n.* (ESA 50747).

29. *Glandularia thymoides* (Cham.) N. O'Leary, *Novon* 17(4): 509. 2007. Basionym: *Verbena thymoides* Cham., *Linnaea* 7: 257. 1832. TYPE: Brazil. s. loc., s.d., *F. Sellow s.n.* (lectotype, designated by O'Leary et al. [2007a: 509], K [bc] K000470527!; isoelectotypes, BR [bc] BR0000005503964!, G [bc] G00366712!, F-876157!, HAL-98272!, K [bc] K000470526!, M [bc] M0111658!, NY [bc] NY00138338!). Figure 30.

Verbena thymoides Cham. f. *albiflora* Moldenke, *Phytologia* 3(4): 178. 1949. TYPE: Uruguay. Dpto. Minas: Cerro Nico Pérez y Sierra Tapambay, Nov.–Dec. 1892, *Arechavaleta 11/1982* (holotype, MVM; isotype, NY-3233, fragm. ex MVM!).

Plants suffruticose, prostrate, 20–30 cm tall, stems decumbent with ascending floral branches, pubescence strigose. Leaves sessile, blade 5–10 × 0.2–1 mm, trisected, segments linear or narrowly elliptic, lateral segments usually biparted or bisected, apex acuminate, margins entire, usually revolute, pubescence strigose on both surfaces. Inflorescences arranged in monobotrya or frondose pleiobotrya, lateral paracladia surpassing terminal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 10 mm. Floral bracts 1.8–3 mm, narrowly ovate, apex acute, sparsely strigose, glabrous margins. Calyx 3–4 mm, sparsely strigose, teeth triangular, 1 mm. Corolla 4–5.5 mm, externally glabrous, pale blue or lilac turning white to violet. Superior pair of stamens with vestigial glandular appendages or unappendaged, not surpassing thecae, not surpassing corolla mouth; style 1.5–2 mm. Cluses 2 mm, apex round.

Distribution and ecology. *Glandularia thymoides* occurs in Argentina in the province of Entre Ríos as well as in southern Brazil in the states of Rio Grande do Sul, Santa Catarina, Paraná, and São Paulo. It is also found in Uruguay. It is found in dry fields and rocky and sandy soils, generally with grasses.

Notes. *Glandularia thymoides* is morphologically similar to *G. balansae*; these species share the presence of trisected leaves with linear or narrowly elliptic segments and small flowers with short calyx and corolla. Troncoso and Bacigalupo (1982) differentiated these species by the length of the leaves, the presence or absence of glandular appendages in the anthers, and the comparative length of the floral bracts, calyx, and style. *Glandularia balansae* has a different habit; it is more erect, while *G. thymoides* is prostrate. Finally, *G. balansae* grows in Paraguay and northeastern Argentina, in the provinces of Misiones and Corrientes, while *G. thymoides* is found in southern and eastern Argentina, reaching Entre Ríos Province and Uruguay. They coexist in southern Brazil (Moldenke, 1962; Troncoso & Bacigalupo, 1982).

Selected material examined. BRAZIL. **Paraná:** Palmeira, Córrego da Anta, 2 Feb. 1975, *Pedersen s.n.* (CTES 354603). **Rio Grande do Sul:** Torres, Butiazal, *Hagelund 15027* (CTES). **Santa Catarina:** Sombrio, *Rambo 32003* (SI). **São Paulo:** Itararé, *Miyagi et al.* 600 (ESA).

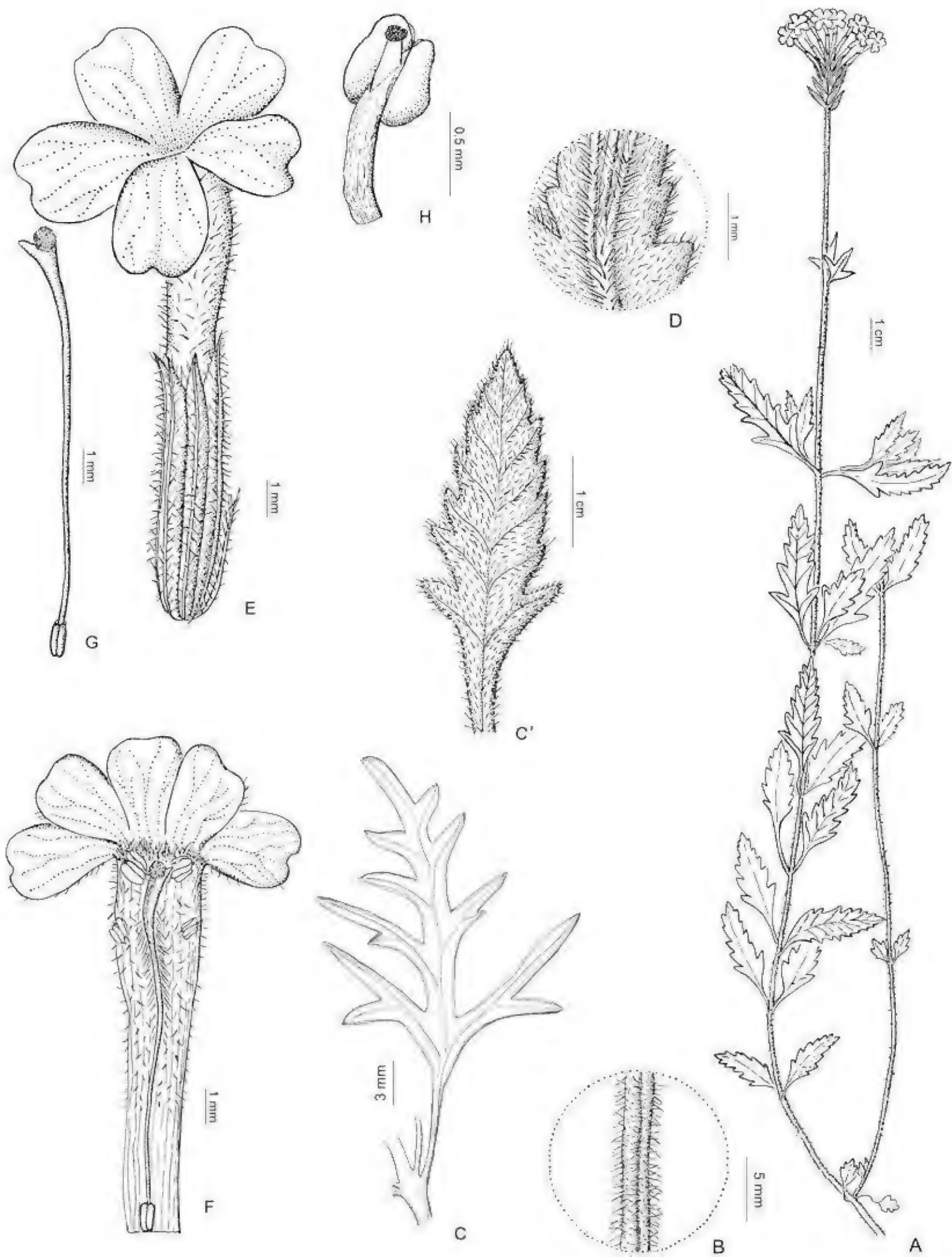


Figure 31. *Glandularia tomophylla* (Briq.) N. O’Leary & V. Thode —A. Branch, general aspect. —B. Detail of stem pubescence. —C, C’. Leaves, adaxial surface. —D. Detail of leaf pubescence, abaxial surface. —E. Flower with floral bract. —F. Corolla opened with androecia and gynoecia. —G. Gynoecia. —H. Superior stamen. A–H from *Ahumada* 4105 (SI).

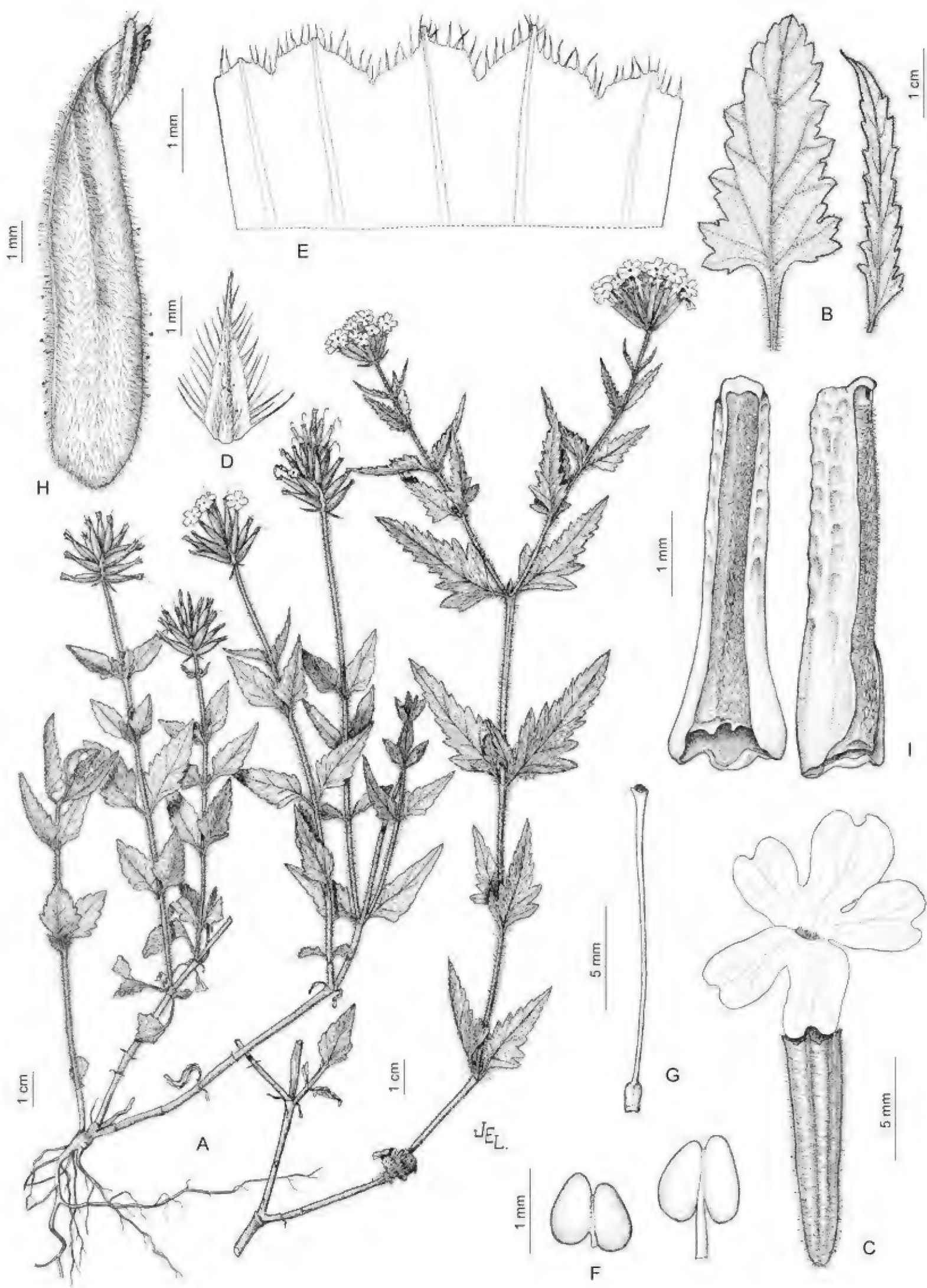


Figure 32. *Glandularia tweediana* (Niven ex Hook.) P. Peralta. —A. Plant, general aspect. —B. Leaves, adaxial surface. —C. Flower. —D. Floral bract. —E. Calyx extended, apical part, inner surface. —F. Superior pair of stamens. —G. Gynoecia. —H. Fructiferous calyx. —I. Cluses, ventral and lateral face. A–I redrawn from Troncoso (1979).

30. *Glandularia tomophylla* (Briq.) N. O'Leary & V. Thode, nov. comb. *Darwiniana* 45(2): 241. 2007. Basionym: *Verbena tomophylla* Briq., Bull. Herb. Boissier sér. 2, 4: 1061. 1904. TYPE: Paraguay. Caragatay, Oct. 1898/1899, *E. Hassler* 3295 (holotype, G; isotypes, GH!, K [bc] K000470721!, P [bc] P00752581!, SI-76331, fragm. ex G!). Figure 31.

Verbena megapotamica Spreng. var. *pinnatiloba* Kuntze, Revis. Gen. Pl. 3(2): 256. 1898. *Verbena pinnatiloba* (Kuntze) Moldenke, Phytologia 2: 28. 1941. TYPE: Paraguay. s. loc., Sep. 1892, *E. O. Kuntze* s.n. (holotype, NY not seen; isotypes, SI-76307! fragm. ex NY!, US-701063!).

Verbena calliantha Briq., Bull. Herb. Boiss., sér. 2, 4: 1059. 1904. TYPE: Paraguay. Concepción: in Dumetis, Oct., *E. Hassler* 7615 (lectotype, designated by Peralta & Múlgura [2011: 399], NY [bc] NY00138249!; isolectotype, BM [bc] BM000098802!).

Verbena calliantha Briq. var. *microsoma* Briq., Bull. Herb. Boiss., sér. 2, 4: 1060. 1904. TYPE: Paraguay. Cerro Pyta, Oct. sine anno, *E. Hassler* 1272 (holotype, G not seen).

Verbena storeoclada Briq., Bull. Herb. Boiss., sér. 2, 4: 1060. 1904. TYPE: Paraguay. s. loc., Sep. 1898/1899, *E. Hassler* 4489 (holotype, G not seen; isotypes, F [bc] F0074534!, MPU [bc] MPU011503!, NY [bc] NY00138327!, P [bc] P00650864!, P [bc] P00650865!, UC [bc] UC935083!).

Verbena spectabilis Moldenke, Phytologia 2(10): 426. 1948. *Glandularia spectabilis* (Moldenke) Botta, Hickenia 2(28): 128. 1995. TYPE: Argentina. Misiones: Posadas, Loreto, "Magdalena," 6 Feb. 1908, *E. L. Ekman* 1980 (holotype, S [bc] S04-2452!; isotypes, NY [bc] NY00138325!, SI [bc] SI003821!).

Verbena ramboi Moldenke, Phytologia 3(8): 427. 1951. TYPE: Brazil. Rio Grande do Sul: faz. Santa Cecilia pres. S Gabriel, 15 Jan. 1944, *B. Rambo* 25787 (holotype, PACA not seen; isotype, NY [bc] NY00138315!).

Plants suffrutescent, 50–100 cm tall, stems erect or decumbent with ascending floral branches, 4-angled, pubescence hispid, retrorse hairs. Leaves petiolate, petiole 5–7 mm, blade 30–50 × 8–25 mm, entire elliptic to ovate or pinnatilobate, sometimes pinnatisect at apical nodes, apex acute, base acute, margin irregularly serrate, adaxial surface strigose, abaxial surface hispid. Inflorescences arranged in monobotrya or pleiobotrya with frondose paracladia, surpassing the principal inflorescence, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncles 15–30 mm. Floral bracts 3–5 mm, narrowly ovate, apex acute, strigose, ciliate margin. Calyx 8–10 mm, hispid, teeth acute, 1.8 mm. Corolla 12 mm, externally villous, violet or lilac. Superior pair of stamens with vestigial sessile glandular appendages, surpassing thecae, not surpassing corolla mouth, style 10–11 mm. Cluses 2.8–3.5 mm, apex round.

Distribution and ecology. *Glandularia tomophylla* is found in eastern and central Argentina, Paraguay, and southern Brazil. It grows in rocky fields, forest margins, roadsides, and sandy soils, at elevations between sea level and 650 m.

Notes. *Glandularia tomophylla* has variable leaf morphology, from entire to pinnatilobate, sometimes pinnatisect at the apical nodes (Fig. 31C, C'). This species is similar to *G. peruviana* and *G. tweediana*; however, the latter two are distinguished by longer cluses (4–4.5 mm vs. 2.8–3.5 mm) and unappendaged stamens.

Glandularia tomophylla is also similar to *G. nana* and *G. subincana*; see notes under these two species for further details.

Selected material examined. BRAZIL. **Rio Grande do Sul:** Cachoeira do Sul, *Sobral* 1718 (SI).

31. *Glandularia tweediana* (Niven ex Hook.) P. Peralta, Ann. Missouri Bot. Gard. 98: 400. 2011. Basionym: *Verbena tweediana* Niven ex Hook., Bot. Mag., 63: t. 3541. 1836. *Verbena megapotamica* Spreng. var. *tweediana* (Niven ex Hook.) Kuntze, Revis. Gen. Pl. 3(2): 256. 1898. TYPE: Uruguay. Laguna de La Molina, s.d., *J. Tweedie* s.n. (holotype, K not seen; isotype, SI-76924 fragm. ex K!). Figure 32.

Verbena tweediana Niven ex Hook. var. *arraniana* Niven ex Maund, Botanist 2: tab. 60. 1838. TYPE: *Maund*, Botanist 2: t. 60. 1838 (lectotype, designated by Peralta & Múlgura [2011: 401], tab. 60, in Niven ex Maund, 1838).

Verbena incisa Hook., Bot. Mag. 65: tab. 3628. 1839. *Glandularia incisa* (Hook.) Tronc., Fl. Prov. Buenos Aires, Colecc. Ci. Inst. Nac. Tecnol. Agropecu. 4(5a): 135. 1965. TYPE: Argentina. Santa Fé, s.d., *J. Tweedie* s.n. (holotype, K [bc] K000470715!; isotype, SI-76957, fragm. ex K!).

Verbena megapotamica Spreng. var. *truncatula* Briq., Annuaire Conserv. Jard. Bot. Genève 5–9: 3. 1904. TYPE: Paraguay. s. loc., s.d., *B. Balansa* 1024c (holotype, G not seen).

Verbena tessmannii Moldenke, Phytologia 3: 45. 1948. *Glandularia tessmannii* (Moldenke) P. Peralta & V. Thode, syn. nov. *Rodriguésia* 61(suppl.): 30. 2010. TYPE: Brazil. Paraná, Ponta Grossa, faz. Lagoa Dourada, near Vila Velha, 21 km SE of Ponta Grossa, 830 m.s.m., 17 Feb. 1948, *G. Tessmann* 2923 (holotype, NY [bc] NY00138337!).

Verbena peruviana f. *alba* Moldenke, syn. nov. Phytologia 7: 258. 1960. TYPE: Brazil. Santa Catarina: Sombrio, 10 m, 9 Oct. 1945, *R. Reitz* c1280 (holotype, NY not seen; isotypes, SI [bc] SI004227!, SI [bc] SI004228!).

Prostrate herb, stems decumbent with ascending floral branches, pubescence densely hirsute. Leaves briefly petiolate, petiole 4–7 mm, blade 40–50 × 7–

15 mm, entire, ovate to triangular, apex acute, base truncate, margin lobate or deeply serrate, both surfaces densely hispid. Inflorescences arranged in monobotrya or frondose pleiobotrya, inflorescences represented by dense multifloral spikes, enlarged in fruit, peduncle 25–30 mm. Floral bracts 2.5–6 mm, ovate, apex acute, hirsute-glandular, ciliate margin. Calyx 8–12 mm, densely hispid-glandular, teeth triangular, 0.5 mm. Corolla 14–19 mm, externally villous, lilac or pink, exceptionally white. Superior pair of stamens unappendaged, style 15 mm. Cluses 4–4.5 mm, apex round.

Distribution and ecology. *Glandularia tweedieana* is widely distributed in northern and central Argentina, as well as in Bolivia, Brazil, Paraguay, and Uruguay. It can be found in roadsides, open areas, sandy soils, and forest margins, at elevations between 100 and 2600 m.

Notes. *Glandularia tweedieana* is similar to *G. peruviana*, *G. tomophylla*, and *G. nana*; see differences under these species.

The analyses of the type material of *Verbena tessmannii* and *V. peruviana* f. *alba* demonstrated that both are synonyms of *Glandularia tweedieana*.

Selected material examined. BRAZIL. **Paraná:** Curitiba. Estr. Fed. R. Negro, Km. 9, *Tessmann 1950* (MBM). **Rio Grande do Sul:** Torres, *Reitz 4445* (SI). **Santa Catarina:** Sombiro, 9 Oct. 1945, *Reitz 1281* (SI).

Literature Cited

- Hickey, L. J. 1974. Clasificación de la arquitectura de las hojas de dicotiledóneas. *Bol. Soc. Argent. Bot.* 16: 1–24.
- Lawrence, G. H. 1951. *Taxonomy of Vascular Plants*. Macmillan, New York.
- Marx, H., N. O’Leary, Y. Yuan, P. Lu-Irving, D. Tank, M. E. Múlgura & R. Olmstead. 2010. A molecular phylogeny and classification of Verbenaceae. *Amer. J. Bot.* 97(10): 1647–1663.
- McNeill, J. 2014. Holotype specimens and type citations: General issues. *Taxon* 63: 1112–1113.
- McNeill, J., F. R. Barrie, W. R. Buck, V. Demoulin, W. Greuter, D. L. Hawksworth, P. S. Herendeen, S. Knapp, K. Marhold, J. Prado, W. F. Prud’Homme van Reine, G. F. Smith, J. H. Wiersema & N. J. Turland (editors). 2012. *International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code)*. Regnum Veg. 154.
- Moldenke, H. N. 1962. Materials toward a monograph of the genus *Verbena* III. *Phytologia* 8: 175–216.
- Moldenke, H. N. 1964a. Materials toward a monograph of the genus *Verbena* XVIII. *Phytologia* 10: 89–162.
- Moldenke, H. N. 1964b. Materials toward a monograph of the genus *Verbena* XX. *Phytologia* 10: 270–319.
- Múlgura, M. E., S. Martínez, S. Atkins & A. D. Rotman. 2002. Morfología de las inflorescencias en Verbenaceae. *Verbenoideae II: Tribu Lantaneae* p.p. *Darwiniana* 40: 1–15.
- Múlgura, M. E., N. O’Leary & A. Rotman. 2012. Verbenaceae. Pp. 1–220 in F. Zuloaga & A. Anton (editors), *Flora Argentina* 14: i–v. Instituto Multidisciplinario de Biología Vegetal (CONICET-UNC), Córdoba, Argentina.
- O’Leary, N. & P. Peralta. 2007. Nuevas combinaciones en el género *Glandularia* (Verbenaceae). *Darwiniana* 45(2): 218–230.
- O’Leary, N., M. E. Múlgura & O. Morrone. 2007a. New combinations in South American *Glandularia* J. F. Gmel. (Verbenaceae). *Novon* 17(4): 503–511.
- O’Leary, N., M. E. Múlgura & O. Morrone. 2007b. Revisión taxonómica de las especies del género *Verbena* L. (Verbenaceae): Serie *Pachystachyae*. *Ann. Missouri Bot. Gard.* 94(3): 571–622.
- O’Leary, N., C. Calviño, S. Martínez, R. G. Olmstead & M. E. Múlgura. 2012. Evolution of morphological traits in Verbenaceae. *Amer. J. Bot.* 99(11): 1778–1792.
- O’Leary, N., P. Peralta & M. E. Múlgura. 2013a. Nomenclatural and taxonomical novelties in *Glandularia*, Verbenaceae. *Phytotaxa* 139(1): 63–64.
- O’Leary, N., P. Peralta & M. Múlgura. 2013b. El género *Glandularia* (Verbenaceae) en Chile. *Darwiniana*, n. s. 1(2): 253–278.
- Peralta, P. 2009. *Sistemática y Filogenia del Género Glandularia*. Ph.D. Dissertation, Facultad de Ciencias Naturales, UNLP, La Plata, Argentina.
- Peralta, P. & M. Múlgura. 2011. El género *Glandularia* (Verbenaceae) en Argentina. *Ann. Missouri Bot. Gard.* 98(3): 358–412.
- Thiers, B. 2013 (continuously updated). *Index Herbariorum: A global directory of public herbaria and associated staff*. New York Botanical Garden’s Virtual Herbarium. <<http://sweetgum.nybg.org/ih>>, accessed 4 August 2016.
- Thode, V. & L. Mentz. 2010. O genero *Glandularia* J. F. Gmel. (Verbenaceae) no Rio Grande do Sul, Brasil. *Acta Bot. Bras.* 24(2): 529–557.
- Thode, V. & N. O’Leary. 2014. *Glandularia* in Lista de Espécies da Flora do Brasil. Jardim Botânico do Rio de Janeiro. <<http://reflora.jbrj.gov.br/reflora/PrincipalUC/PrincipalUC.do>>, accessed 18 February 2014.
- Troncoso, N. S. 1979. Verbenaceae. Pp. 229–294 in A. Burkart (editor), *Flora Entre Rios*. Colecc. Ci. Inst. Nac. Tecnol. Agropecu. 6(5).
- Troncoso, N. S. & N. Bacigalupo. 1982. Plantas vasculares. *Flora Entre Rios IV*. *Darwiniana* 24: 475–487.

Appendix 1. List of accepted taxa.

1. *Glandularia angustilobata* (Moldenke) P. Peralta & V. Thode
2. *Glandularia aristigera* (S. Moore) Tronc.
3. *Glandularia balansae* (Briq.) N. O’Leary
4. *Glandularia catharinae* (Moldenke) N. O’Leary & P. Peralta
5. *Glandularia corymbosa* (Ruíz & Pav.) N. O’Leary & P. Peralta
6. *Glandularia dusenii* (Moldenke) N. O’Leary & P. Peralta
7. *Glandularia guaibensis* P. Peralta & V. Thode
8. *Glandularia guaranitica* Tronc.
9. *Glandularia hasslerana* (Briq.) Tronc.

10. <i>Glandularia hatschbachii</i> (Moldenke) N. O’Leary & P. Peralta 11. <i>Glandularia herteri</i> (Moldenke) Tronc. 12. <i>Glandularia humifusa</i> (Cham.) Botta 13. <i>Glandularia jordanensis</i> (Moldenke) N. O’Leary & P. Peralta 14. <i>Glandularia lobata</i> (Vell.) P. Peralta & V. Thode 14a. <i>Glandularia lobata</i> var. <i>lobata</i> 14b. <i>Glandularia lobata</i> var. <i>glabrata</i> (Moldenke) P. Peralta & V. Thode 15. <i>Glandularia marrubiioides</i> (Cham.) Tronc. 16. <i>Glandularia megapotamica</i> (Spreng.) Cabrera & G. Dawson 17. <i>Glandularia nana</i> (Moldenke) Tronc. 18. <i>Glandularia paulensis</i> (Moldenke) A. L. R. Oliveira & Salimena 19. <i>Glandularia peruviana</i> (L.) Small 20. <i>Glandularia phlogiflora</i> (Cham.) Schnack & Covas 21. <i>Glandularia platensis</i> (Spreng.) Schnack & Covas 22. <i>Glandularia rectiloba</i> (Moldenke) P. Peralta & V. Thode 23. <i>Glandularia scrobiculata</i> (Griseb.) Tronc. 24. <i>Glandularia selloii</i> (Spreng.) Tronc. 25. <i>Glandularia sessilis</i> (Cham.) Tronc.	26. <i>Glandularia stellarioides</i> (Cham.) Schnack & Covas 27. <i>Glandularia subincana</i> Tronc. 28. <i>Glandularia tenera</i> (Spreng.) Cabrera 29. <i>Glandularia thymoides</i> (Cham.) N. O’Leary 30. <i>Glandularia tomophylla</i> (Briq.) N. O’Leary & V. Thode 31. <i>Glandularia tweedieana</i> (Niven ex Hook.) P. Peralta Appendix 2. List of newly synonymized taxa. <i>Verbena hasslerana</i> Briq. var. <i>glandulosa</i> Moldenke [= <i>Glandularia nana</i> (Moldenke) Tronc.] <i>Verbena peruviana</i> (L.) Britton f. <i>alba</i> Moldenke [= <i>G. tweedieana</i> (Niven ex Hook.) P. Peralta] <i>Verbena pulchra</i> Moldenke [= <i>G. hasslerana</i> (Briq.) Tronc.] <i>Verbena pulchra</i> var. <i>paludicola</i> Moldenke [= <i>G. nana</i> (Moldenke) Tronc.] <i>Verbena tessmannii</i> Moldenke [= <i>G. tweedieana</i> (Niven ex Hook.) P. Peralta] <i>Verbena tristachya</i> Tronc. & Burkart [= <i>G. sessilis</i> (Cham.) Tronc.]
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